

# PULP & PAPER

"The Cellulose Age"

## EDITORIALS

### Canada Can Retaliate

Most unfortunate thing about this department of justice investigation or prosecution of Canada's newsprint industry and attempt to subpoena its officers (and this wasn't pointed out, either, by the U. S. newspapers) is that Canada might be tempted to retaliate. Already Canada's long term financial position, in relation to her shortage of American dollars, is bringing a re-appraisal of the Dominion's pulp and paper export status.

During the past year or so Canada has been virtually giving away a large portion of her exports to the United Kingdom because the latter has made payment to the extent of 50% from Canadian loans to Britain, the other 50% having been from the United States loan to Britain. Anything that Canada buys from the United States, of course, has been paid for in cash.

Several remedies have been suggested:

1. Devaluation of the Canadian dollar in relation to U. S. currency;
2. Further restrictions on importations from the United States;
3. Increase in Canada's exports to the United States. A combination of all three may have to be resorted to, temporarily, but from Canada's standpoint the most preferable recourse would be to an increase of exports, especially of finished products representing high cash value.

And newspaper publishers should take heed that newsprint is not such a product. Already many Canadian mills are increasing their production of better grades of papers which bring higher financial rewards. And why not?

Of direct concern to the pulp and paper industry, such a policy would lead to curtailment of raw material exports such as logs. We pointed out in our lead editorial in September that a critical 10% of American pulpwood supply comes from Canada and it would go mighty hard with the paper industry in this country if that were cut off.

At any rate, the American people as a whole, and U. S. newspapers, would suffer if Canada takes any drastic action.

### Mill Capacity and Future Demand

According to the Writing Paper Manufacturers' Association, the capacity of the United States paper industry is likely to just about reach its saturation point as far as future long-term market demand is concerned by the end of this year.

Annual capacity of U. S. mills will then have reached the record high level of 22,000,000 tons.

"According to one calculation recently made," says M. C. Dobrow, the executive secretary of the association, "possible requirements, exclusive of imported newsprint and based upon population growth and recent rate of growth per capita consumption, will reach 21,300,000 tons in 1951."

These figures are worthy of sober thought by this industry. From many points of consideration, the paper industry seems to be on a more solid footing than it has been in the now distant past—

DECEMBER  
Vol. 21  
Member Audit Bureau of Circulations  
Contents copyrighted, 1947

1947

No. 13



The Production and Management Journal Covering  
North America's Wood Pulp, Paper, Paperboard  
and Cellulose Industries

by MILLER FREEMAN PUBLICATIONS, INC.

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SUBSCRIPTION—For 1 Yr., inc. North American Review Number—\$3 in U. S. and Canada, \$4 in other countries. For 2 Yrs., \$5 in U. S. and Canada; \$7 in other countries.

after World War I and in other critical periods of its history. And not the least of the reasons for visioning a silver-lined future is that most of the responsible leadership is looking toward that future with an optimism tempered by caution.

An important point that has not been mentioned is that the available pulp supply in this era of expansion has not kept up with the expansion in paper mill capacity. Maybe it will be the amount of pulp available—not machine capacity—that will really influence the future prosperity of the industry. It doesn't look like any inflationary supply of pulp in the offing. Even if pulp supply should run a fraction over capacity in some near future period, this industry should not become unduly alarmed at the effect that may have providing everyone keeps a cool head. It is unlikely that there will be any destructive over-supply of pulp at any time in the future, as was occasionally the case in past history.

Unexpectedly persistent high levels of demand are now being enjoyed by the paper industry and an all time record high production of over 21,000,000 tons in United States mills is by now virtually assured for 1947. At present this is not meeting the unexpected high demand.

However, it will be wise to critically examine cost and profit margins from time to time in the coming months. Several mill executives in this industry have told **PULP & PAPER** that the companies who really try to serve the customer well with attractive products and at lowest possible costs should have nothing very grim to worry about.

### It Still Takes Trees to Make It

A recent issue of Fortune featured an article aptly titled "The World Pulp Shortage." With text and diagrams. Fortune describes current wood pulp demand and supply in international terms. But those who have read **PULP & PAPER** for the past six or seven years have known for a long time that there was to be a genuine shortage of wood pulp. Nonetheless, we are pleased to see the industry given this attention by Fortune.

In recent months several big magazine publisher-users of paper have shown evidence of realizing that the stuff on which words are printed is paper, that it comes from wood pulp, which in turn comes from trees. Now that they have come to this realization, it is hoped that their attitude toward the industry will be more farsighted than was that of the newspaper publishers

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# Plainwell Mill Sold

## TO USE WASTE AND DE-INK FOR NEWSPRINT



DWIGHT L. STOCKER, continues as President and Gen. Mgr. of Michigan Paper Co. of Plainwell, sold to group of Michigan newspapers.

The Detroit Evening News and the Booth Newspapers of Michigan have bought the Michigan Paper Co. of Plainwell, in Plainwell, Mich., for an undisclosed sum, marking the first time in the 60-year history of that company that its control has passed from the hands of local families in the Kalamazoo area. Officers and personnel will remain unchanged.

A new Beloit 122-inch trim Fourdrinier machine, now in operation at the mill, will be changed over to newsprint, starting off at 35 tons and ultimately making at least 50 tons per day. This machine has been used on book paper and is mechanically capable of speeds up to 1,000 feet. It is entirely new except for one of three dryer sections and a calender stack.

De-inked newspapers and waste paper will be used in making the newsprint. An efficient and modern new system of transporting and handling waste paper already has been installed at the Plainwell mill, as well as new equipment for pulping waste paper.

A push-button-operated, but a rugged and capable roller type conveyor supplied by Stephens-Adamson Mfg. Co. of Aurora, Ill., is already serving a new 16-ft. Hydrapulper. The sorting and selecting of waste papers is eliminated as the big 40-ft. long conveyor handled a full charge of 6,000 lbs. of paper for the big Shartle-Dilts pulping machine. It loads the full charge into the Hydrapulper in just 1½ minutes.

A new Bauer Bros. pulper (Springfield, O.) of 75 tons capacity will take the stock from the Hydrapulper and refine it further for the machine. Stock then passes

through two Bird screens to the machine. A Bird Dircet is used for tail screening. A rectifier roll in the headbox permits better formation at high speeds. The machine has a dual press, breaker press and size press and latest push button controls.

The two older paper machines at the Plainwell mill will continue to make lightweight book papers for regular and old customers. The changeover to newsprint on the big new machine, however, will mean much more use of waste paper than heretofore.

The de-inking process which will be used has not yet been decided upon.

Dwight Stocker continues as the president and general manager. Mr. Stocker, who last year completed a term as president of the Pulp Consumers Association, continues to retain a nominal stock ownership in the company. Mr. Stocker, born in the east, came to Plainwell after a period in the Far West, during which he was with Hawley Pulp & Paper Co., Oregon City, and with an electric company in Portland, Ore.

Raymond L. Barton continues as the general superintendent; William N. Astle remains as beater room superintendent, and others of the operating staff continue.

It is understood the Detroit Evening

News will get half of the newsprint production and the other half will be divided among the eight Michigan newspapers in cities such as Kalamazoo and Lansing which are members of the Booth group of papers. Thus, when production is full underway the Detroit paper will get 25 tons a day while an equal amount will be split among the Booth papers.

### MORE MILLS SOLD

Another wave of paper mill sales seem to be spreading through the Midwest. As Michigan Paper Co. of Plainwell passes from local owners to the Booth Newspapers of Michigan and the Detroit Evening News, there were rumors of one or two other Michigan mills changing hands.

Meanwhile, American Coating Mills at Elkhart, Ind., has been sold to Owens Illinois Glass Co.; MacSimBar Paper Co. at Otsego, Mich., has passed to Chicago Carton Co.; Ohio Waxed Paper Co. in Columbus, O., has been sold to Pollock Paper & Box Co., of Dallas, Tex.; American Box Board Co. of Grand Rapids, Mich., has bought Filer Fibre Co., of Filer City, Mich., and changed its name to American Pulp & Paper Co., and Grand Rapids Box Co. has been sold to American Coating Mills.

This adds up to quite a number of Michigan mills which have changed hands since the war, Bryant Paper Co. now being a division of St. Regis and the North American Pulp & Paper Co. having been bought by the Lesavoy interests.

## 2nd Espanola Machine MAKES NEWS TEMPORARILY

A second paper machine went into production on Oct. 19 at KVP Co., Ltd., Espanola, Ont., Canadian subsidiary of Kalamazoo Vegetable Parchment Co. of Parchment, Mich. The first paper machine went into production Aug. 1.

The second machine is temporarily making about 50 tons a day of newsprint for the Booth newspapers of Michigan as an emergency measure, but this newsprint emergency as far as those papers are concerned is expected to abate by mid-1948 and it will then join the first machine in making wrapping paper, according to Ralph Hayward, president of both the Michigan and Ontario companies.

The two machines are identical Pusey & Jones 164-inch machines trimming 150 inches, one installed in 1920 and the other in 1921 when the mill was operated by former owners. They had been shut down since 1930 but were maintained in excellent shape, said Mr. Hayward, and have been extensively rehabilitated. New Fourdriniers and new slices have been installed.

A new kraft pulper mill built at Espanola by KVP has been in production for

some time and was elaborately described last year in **PULP & PAPER**. This mill is now averaging about 6,000 tons per month, nearly all of it bleached. Also 800 to 1,000 tons per month of groundwood is made at Espanola, all now going on the two paper machines. Approximately 1,200 tons of kraft pulp per month go on the machines, also.

E. Norval Hunter is vice president and manager of manufacturing at Espanola. The wrapping paper being made there is a specialty product similar to that made at Parchment. When the first machine started up, it was put on newsprint for the Booth papers, but switched to wrapping paper when the second machine started. With both machines operating, about 100 more employees have been added all through the plant.

A push-button controlled complete stock preparation system is in operation. This is the Dilts-Fleck Hydrapulper Hydracycle system previously described in **PULP & PAPER**. Both paper machines are well equipped with suction couches and one suction press has been put into service.

## Many Critical Developments Cast Shadow on —

# This Industry's Future

These are truly parlous times for the North American pulp and paper industry. A future historian may need to point back to events in the closing months of 1947 to explain the courses taken by an industry which was — in those months — crowding for No. 5 position in the U. S. and riding high as the No. 1 industry of Canada. Consider these happenings:

1. Canada has officially protested through diplomatic channels against the attempt of the U. S. Justice Department to subpoena Canadian newsprint company officers and their records for a U. S. court.

2. President Truman expressed his "concern" over this insult to Canadians, incited by a few U. S. senators who profess to believe the North American paper industry is some kind of a "monopoly."

(The above two international events of high policy have not been reported in the daily press, but **PULP & PAPER** learned of them from a positively reliable source).

3. Premier George Drew of Ontario announced (at a chamber of commerce dinner in Port Arthur) that export of pulpwood from Ontario will be entirely prohibited in 10 years by gradually tightening restriction. Exports to Lake States and Northeast U. S. mills already was limited to less than 600,000 cords in 1946. Under the premier's program, U. S. firms which have built Ontario mills may ship wood out of Canada for only 10 years more; those who vacated areas for mills, for only four years, and all others will be cut off in three years.

4. U. S. book and fine paper mills were weighing the wisdom of joining with pulp marketers in investing in an Alaskan mill for an assured future pulp supply.

5. Indian groups and their lawyers, facing a long wait before they might get any cash grant from the Great White Father after the sale of government timber in Alaska, were apparently trying to maneuver a faster cash pay-off by announcing their so-called contractors were going to start cutting right away in U. S. forest lands. These are forests the government is trying to sell private pulp investors, but which ex-Secretary Ickes once "determined" belonged to the Indians.

6. Meanwhile, the Interior Department let slip with a premature announcement that Secretary Krug had approved a measure to set up Indian reservations in the Alaska pulpwood area (despite all the lip service he had paid to a private pulp investment). Of course, he hastened to deny he had yet done so and it was doubtful if this further extension of Interior bureaucracy could be pushed through the Republican Congress.

7. The Swedish government announced it will reduce pulp exports to Europe by 50% in order to obtain more sorely needed dollars. This means pulp shipments to the

U. S. might be increased, say, 25%, to about 600,000 tons in 1948—but, of course, the effect could not be felt in this country until next May or June, after the break-up of the winter freeze on Swedish waterways.

8. The first hints of possible devaluation of foreign currencies, which would be perhaps the most dangerous threat to American industry, have been reported in Wall Street Journal, N. Y., Times, etc. In Sweden, business men whose dollar holdings

have been seized by the government, are reported "clamoring" for a 16 2/3% premium over the present krona-dollar rate. Swedish Riksbank governors, however, have declared depreciation of the krona will not relieve the lack of financial balance in Europe.

9. A letter to the Export-Import Bank made public by Senator Alexander Wiley, revealed a \$20,000,000 credit to Finland to bolster pulp and lumber exports, as Finnish pulp exporters to the U. S. announced another increase in pulp prices of \$7 1/3-\$10. Domestic producers' prices were being maintained at lower levels.

10. The number of "captive" paper mills, especially in the Middle West continues to increase. These are mills which have been purchased by converters, particularly of board, or by newspapers or newspaper groups, for the purpose of course, of assuring their paper supplies. In some of the historic paper mill regions of the Midwest, built to their present position by local families, there was some concern felt as to future policies of new absentee owners. In some cases at least, it was feared the new owners may not seek to permanently develop the properties but would eventually offer them for sale again.

These events may not seem to be very closely related to one another, but only future developments and government policies will reveal to what extent they affect the future prosperity of this industry and its employees.

### Remarks by D. K. Brown

In this connection, British-born D. K. Brown, president of Neenah Paper Co., Neenah, Wis., and twice former president of the American Paper & Pulp Association, made these remarks before the recent fall convention of the National Paper Trade Association in Chicago:

"Possibly I am stepping out of bounds in commenting on tariffs and international trade agreements, but I want to go on record as stating that while I fully realize that we can no longer live unto ourselves and that ways and means will have to be found to accept and absorb some portion of the world's goods in payment for our own export commodities, yet at the same time we must endeavor to protect our own wage schedules and standard of living, which are way in excess of those countries from which paper and pulp are imported.

"These same countries are to a degree responsible for the present high prices of some of our necessary raw materials, and while they may be justified by internal conditions, yet it behooves us to encourage expansion and development of our domestic pulp production, the leaders in which have shown sound judgment and self-control in limiting their price ad-

### COMING INDUSTRY MEETINGS

TAPPI Kalamazoo Valley Section— Columbia Hotel, Kalamazoo, Mich.	Dec. 4
Supts. Pacific Coast Division— New Washington Hotel, Seattle, Wash.	Dec. 5-6
TAPPI Lake States Section— Am. Legion Hall, Appleton, Wis.	Dec. 9
Chicago Profession Paper Group— Chicago Bar Assn., Chicago	Dec. 15
TAPPI Empire State Section (West) —Prospect House, Niagara Falls, N. Y.	Dec. 17
Supts. Michigan Division—Park American Hotel, Kalamazoo, Mich.	Dec. 18
TAPPI Empire State Section (East) —Queensbury Hotel, Glens Falls, N. Y.	Dec. 19
TAPPI New England Section— Roger Smith Hotel, Holyoke, Mass.	Dec. 19
TAPPI Pacific Coast Section— (undecided) Everett, Wash.	Jan. 16
Canadian Pulp & Paper Assn.—Mt. Royal Hotel, Montreal	Jan. 30-31
American Paper & Pulp Assn.— Waldorf Astoria, New York	Feb. 23-27
TAPPI National Convention— Commodore Hotel, New York	Feb. 23-26
National Paper Trade Assn.— Waldorf-Astoria, New York	April 5-7
National Paper Box Mfgs.— Netherlands Plaza, Cincinnati	May 9-12
National Supts. Convention— Roosevelt Hotel, New Orleans	May 19-21
Envelope Mfgs. of America— White Sulphur Springs, W. Va.	June 10-11
Technical Section Canadian Assn.— Vancouver Hotel, Vancouver, B. C.	Sept. 4-6





REP. CLARENCE J. BROWN (left), Rep. of Ohio, says Canada's book paper industry will expand as wood exports are reduced; he also said his Congressional committee will investigate kraft production in the South as soon as this session of Congress is over.

Next (left to right) are: M. J. "Joe" SCHULERBERG, Special Assistant of President Cola Parker of Kimberly-Clark, who read latter's prediction of general balance of paper supply and demand in '48 at Trade Assn. meeting in Chicago.

HON. H. R. SCOTT, Minister of Lands and Forests for Ontario, and PREMIER GEORGE DREW, of Ontario, who announced at a Chamber of Commerce dinner in Ontario that his province would gradually curtail exports of pulpwood until by 1957 no more would be exported to U. S. mills.

vances which otherwise would have meant still higher prices on our products to you.

"Furthermore, while these importations are today priced considerably higher than the domestic level, yet in competitive markets and under favorable exchange conditions these same countries can and do ship these commodities into our country at prices below the domestic cost of production.

"Let us not forget that unemployment in industry, which is caused by imports of paper, pulp, or any other commodity at prices which our domestic industry cannot meet, ultimately becomes a burden on our national economy."

## TWO NEW MILLS PROPOSED

One of the first repercussions from the Ontario premier's warning that wood exports would be abolished by 1957; was the announcement by President Earl Rowe of Great Lakes Paper Co., that that company would build a market pulp mill in Ontario.

President Rowe said his company's plan "conforms" with the new Ontario wood policy and that the Great Lakes Paper Co., of Fort William, Ont., had been "approached by substantial users of pulp in the United States." He added "negotiations are being pursued that would provide Great Lakes Paper Co. with a guaranteed market for the full output of the proposed plant on satisfactory terms."

It is assumed kraft or alkaline pulp would be made, as he said additional types of pulp other than the company's present sulfite and groundwood pulps would be made. A 312,000,000 kraft mill was reported as projected. Ontario Hydro Commission development on the Nipogen River would provide power for the expansion.

Premier Drew predicted two positive results of his forest policy:

1. "Make more wood available from the same total cut for Ontario mills. We still have a safe margin of growth over the amount we are cutting," he said.

2. "Increase very greatly the dollar export value of the trees we cut."

Another new Canadian mill, to make 350,000 tons of newsprint annually, is planned at Lepreau, on the Bay of Fundy, a few miles west of St. John, New Brunswick, provided United States newspaper publishers subscribe enough capital for it. A \$65,000,000 mill is projected. New York publishers, meeting in October, subscribed \$10,500,000 for 30% of the output, said E. C. Atkinson, Fredericton, N. B., lawyer, one of the promoters. Other publishers must subscribe \$24,500,000 and \$30,000,000 would be financed through a bond issue at long term low interest.

Stadler, Hurter & Co., Montreal engineers, were called in on a second New York meeting of the promoters. A power plant would have to be built as well as a town site.

The New Brunswick mill would be one of the biggest in the world and would add 8% to Canada's newsprint capacity of 4,349,700 tons. To make 1,000 tons a day, great amounts of wood would be required and this may strike a snag in view of the recent restrictions imposed on newsprint by Quebec Premier Maurice Duplessis to conserve timber resources.

## TRADE CONVENTION

Besides the address by Mr. Brown of Neenah, warning that a domestic pulp industry should be encouraged, the National Paper Trade Association convention in the Hotel Sherman at Chicago, Oct. 27-29, heard several other important addresses:

Cola Parker, president of Kimberly-Clark Corp., predicted that an "overall balance of paper supply and demand" is fast approaching and that the end of 1947 would see an actual shortage existing only in newsprint, and to a lesser degree, in converted toilet tissue.

"By this I mean that existing capacity at the year's end will be equal to general demand," wrote Mr. Parker, who was absent because of illness, but whose message was read by M. J. Schulerberg, special assistant to the president, Kimberly-Clark Corp.

"I might additionally except book paper," said Mr. Parker, "as it will require perhaps six months more to achieve complete balance, construction programs being what they are."

He estimated 1947 paper production at 21,179,743 tons (based on 8 months' production and a 7% increase in the last quarter), which would beat last year's all-time record by 9.9% or 1,902,076 tons. It would exceed the boom year of 1929 by 90%; the pre-war 1935-39 average by 76% and the wartime average by 22%.

He also forecast a record per capita consumption of paper in the U. S. in 1947 of 348 lbs. Because the industry is operating at more than full 6-day week capacity, he said increased costs must be compensated for by decreased costs in other directions or profits or increased prices.

## TO INVESTIGATE SOUTH

Rep. Clarence R. Brown of Ohio, a country paper publisher and printer, chairman of the national Republican executive committee, ranking member of the house rules committee, and head of the special committee on newsprint and paper supplies, reported on his recent visit to Canada and made some interesting forecasts. He said:

1. As soon as Congress adjourns his committee will go South to investigate kraft paper and wrapping paper production.

2. Development of Alaska is tied in with national defense and so, cheap power may be available there. Alaska will be important to the fine paper industry as a source of quality pulp.

3. The North American industry may be a long time catching up with newsprint demand — it will catch up by 1950.

4. The U. S. industry can expect competition from Canada in fine and book papers. By ending wood exports and restricting pulp exports, Canadians hope to establish a profitable high grade paper industry, even paying U. S. import duties on magazine and book papers.

5. The Southland Paper Mills of Lufkin, Texas, will not only add a second newsprint machine but also a third machine, making a total of 150,000 tons of newsprint, enough to meet Texas needs.

6. An increase in the newsprint price will be made in 1948 (since his address Canadian sources indicate the increase will be \$8-\$10 to \$98-100 a ton).

In commenting on Premier Drew's proposed ban on Ontario wood exports, Rep. Brown said Canadians protested to him that wood prices were being forced up because U. S. manufacturers "would pay almost any prices for wood for export."

He said 35,000 square miles of timber in Ontario has been killed by insects, that Canadians "have accomplished nothing in the fight against it and U. S. manufacturers would like to have that wood" before it is unfit for manufacturing.

Asked what his committee had accomplished, he claimed it had been able to get "a little more equitable distribution in newsprint."

He said less than 1% of paper distributors in the "black or gray market" and



were "lying when they said they were cut off by their mills."

E. W. Tinker, executive secretary of APPA, told the association that the U. S. has enough wood to double its papermaking capacity, with proper planning, and predicted supply would be better in a few years.

He stressed the importance of the pulp and paper industry in foreign trade, pointing out that it created more than a billion dollars in foreign exchange by import of paper, pulp and wood in 1946 and 1947, exclusive of clay and chemical imports for the industry. He urged more attention to pulp and paper export trade, with a view to making that a permanent outlet for mills, rather than an "overflow" outlet.

Rep. J. H. Javits of New York, for 15 years counsel for the association, told its members of his recent European tour and the urgent need of aid abroad. But he urged a technical board, along lines of the War Production Board, to be sure "our dollars and food are used for economic reconstruction and not for a European WPA."

"The greatest adventure American business management ever had lies in the Marshall Plan," he said, and he predicted it eventually would force Russia to cooperate in world peace.

A. W. Towne of San Francisco, president of NPTA, presided at principal sessions and said "we claim most cordial relations with our mill friends, which is so necessary to smooth functioning of our national economy."

### More Mills Predicted

Hon. E. T. Kenney, minister of lands and forests for British Columbia, told **PULP & PAPER** that he expects important pulp and paper expansion in British Columbia during the coming year, and he mentioned at least four groups that have shown an interest in establishing mills. He was not in a position to disclose their identity, however.

Sites have been studied at Prince George, the Arrow Lakes district and on Vancouver Island.

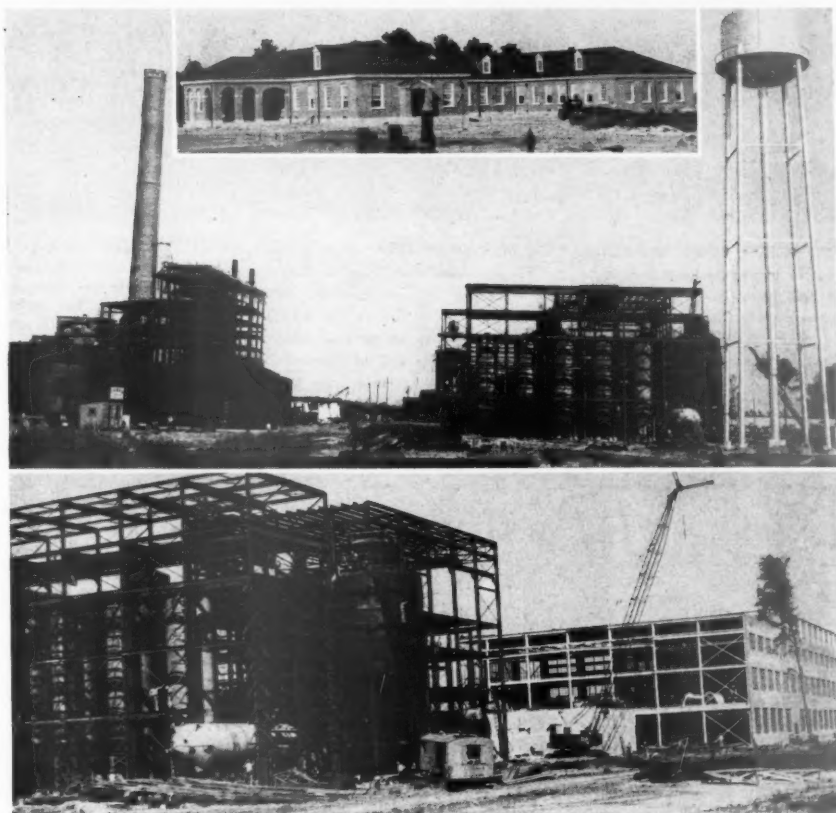
### Small Mill Purchased

A new concern, Potsdam Paper Mills, has purchased the former Unity Paper Mills, in Potsdam, N. Y., and will install machinery and equipment for manufacture of newsprint.

### New Engineering Building for Sonoco

A new \$200,000 engineering building at Sonoco Products Co., Hartsville, S. C., was dedicated Oct. 25. Ceremonies were conducted by James L. Coker, company president. Near relatives of 18 Sonoco men who lost their lives in World War II, and to whom the building was dedicated, were present. B. P. Lawhon shop foreman, father of one of the 18, unveiled a plaque. The 2-story building is one of the most modern in the South. It is completely air-conditioned with modern lighting and paints were selected to reduce eye strain. It includes machine shops.

## Progress Views at Savannah



THREE VIEWS TAKEN AT SOUTHERN PAPERBOARD CORP.'S new mill at Port Wentworth, Savannah, Ga., at mid-October stage. This is a new division of The Robert Gair Co., which will be in production early in 1948, as soon as new industrial water supply is ready. It will be a big producer of pulp and board.

The newly completed general office, landscaping just started, is shown in top inset.

The larger top view, shows (on left) stack, steel structure for recovery boiler house, and the liquor tanks insulated with 3X insulating mastic furnished by Earl Paint Co. of Utica, N. Y.; on right the sixth craft digester is just about to be swung up into place.

Lower view—A glimpse (left) of the digester building and blow tank and (right) the paper mill building.

### French Commies Stymie Pulp Mill Sale

French Communists torpedoed the possible sale of Quebec Pulp & Paper Corp. properties to French industrialists, according to Premier Maurice Duplessis of Quebec.

He says that at the request of the French government, the Canadian government revealed the names of the French capitalists interested in the negotiations and as soon as this was done French Communists brought pressure to have the deal cancelled.

Currently, the Quebec government holds a check for \$1,500,000 deposited by a syndicate for the purchase of the property. The plan was to operate a groundwood and newsprint mill.

Several other groups have been mentioned as being interested in the Quebec property, including Joseph Simard, Quebec shipbuilder and manufacturer; Bathurst Power & Paper Co. and a New York group, which was said to have been prepared to raise \$20,000,000 to get the plant in production.

### How Two Wisconsin Mills Celebrated 60th Anniversaries

Sixtieth anniversaries were celebrated in recent months by both Nekoosa-Edwards Paper Co., and the Gilbert Paper Co., both well-known Wisconsin operations.

The way they did it at Port Edwards-Nekoosa was to issue a 32-page book telling the story of the company, with many excellent illustrations, and the book was sent to paper merchants. It no doubt will serve to answer many inquiries of general nature that come to the company in the future. A dinner was also given for 3,800 employees and family members, including 174—25 year veterans.

At Gilbert Paper Co., distributors from all over the country gathered for a mill visit and entertainment at a country club on Lake Winnebago. A. C. and G. M. Gilbert brought M. C. Dobrow, of the Writing Paper Mfgs. Association, to Menasha, to tell the guests about the past and future prospects for the cotton fiber content paper business. A tour of the Institute of Paper Chemistry was arranged.



THIS PICTURE MIGHT BE ENTITLED "LOG TOW OF DESTINY." Here are one million feet of spruce and hemlock logs from Tongass National Forest of Alaska arriving in Bellingham Bay, Wash., where they were put through successful trial tests of manufacturing processes at the Puget Sound Pulp & Timber Co. Exclusively obtained by PULP & PAPER, this picture might someday be an interesting historical document in view of project for building of a pulp mill in Alaska. These logs

were run through the new modern hydraulic barking and whole log chipping plant of Puget Sound Pulp & Timber Co., described and illustrated so completely in the October issue of PULP & PAPER, and trial lots of unbleached sulfite pulp were made for testing purposes. One tug brought these logs down the 900 miles from Alaska, through the beautiful Inside Passage, in just 28 days but the help of other tugs was required here on reaching mill-side. Note logs are boomed in Davis rafts—being built up in piles.

## PULP & PAPER Investigation Sheds Light on — — NEW ALASKA "DEAL"

Just a few weeks before the Forest Service's Dec. 15 auction of the Ketchikan timber area, a Mrs. Ruth Bronson, in Washington, D. C., gave out an interview to Associated Press saying that two Indian villages or tribes had made a deal with a so-called \$20,000,000 "Timber Development Corp." to start cutting timber in that area "immediately" — and also in the Petersburg area going up for auction Feb. 18.

This action was based on a so-called "determination" by Secretary Ickes when he was in the government that these Indians were rightful owners since aboriginal days of the lands which they were "using." His successor, Secretary Krug has promised, almost since he came into office, to hasten a legal determination of these rights in federal court.

The new Republican Congress, however, stepped in last August with a joint bill which it passed, to hold in escrow, government proceeds of Alaska timber sales for possible future Indian awards, and remove the threat of these claims against private investors in Alaska.

PULP & PAPER has attempted to uncover some of the facts behind this new move involving timberlands in which the pulp and paper industry is interested. Here are the results of our inquiries:

### "Just a Coincidence"

Mrs. Ruth Bronson was formerly in the office of Indian Affairs (since 1925) and she joined the National Congress of American Indians in 1944, the year of its formation. She did not, however, become secretary until last fall at which time she made a trip to Alaska. When interviewed by PULP & PAPER on Nov. 13, she was vague as to the exact use or disposition the Kake and Kasaan tribes would make of the timber if they are successful in their claims.

"My only interest," she said, "is in seeing that the Indians get a fair deal. I am,

### INTERIOR DEPT. SAYS "NO COMMENT"

Unable to contact Secretary of the Interior Julius A. Krug, PULP & PAPER wired him as to the truth of the rumor regarding the new Indian reservations, and also as to the position of Interior toward the new Indian cutting rights claims which would abrogate HR-205 by which Congress gave the Forest Service the right to sell the timber.

Carlton Skinner, replying for Mr. Krug, said a number of Indian communities have petitioned for reservations but would make no further comment. He declined also to comment on Timber Development Corp., saying simply, "we have not seen the contract reportedly signed by it, with the two native villages."

you know, an Indian myself." According to Mrs. Bronson, she has Cherokee blood.

"The Timber Development Corp. will handle the details regarding the sale of the timber or its manufacturing," Mrs. Bronson professed not to know even one of the incorporators of the Timber Development Corp. However, she expressed herself as pleased "that a good firm of attorneys would take the case of the Indian in Alaska. We were all quite happy in the National Congress when they agreed to do it."

This firm is Curry, Cohen and Bingham, of Washington, D. C., and James Curry is most active of the firm in the Indian affairs, having been retained by the National Congress of American Indians since 1944. As this was written he was in Alaska attending a congress of Indians at Hydaburg and expected later to be at the Hotel Ingersoll in Ketchikan.

Henry M. Cohen, of this firm of attorneys, has offices at 10 Rockefeller Plaza, and he told PULP & PAPER that the Associated Press dispatch was in error in connecting him with the Timber Develop-

ment Corp., and that his firm was counsel only for the National Congress of American Indians. He offered, however, to supply the name of the counsel for the Timber Development Corp. "if he has no objections" and later supplied this attorney's name as Richard G. Green, 9 Rockefeller Plaza, New York City.

According to Mrs. Bronson, the fact that two tribes involved in the claim are resident in the Ketchikan mill forest area, as well as in the Petersburg-Thomas Bay mill area — the two parcels of timberland to be auctioned by the Forest Service on Dec. 15 and Feb. 18, respectfully—"is just a coincidence. The Kasaan Indians asked me to help them when I was in Alaska last fall," she said. "They needed money badly, and were afraid they were going to lose the timber. The Kake tribe came in for the same reason."

She was asked whether she was aware that, under present regulations, logs could not be exported from Alaska. "I don't know anything about that. I just want the Indians to have a voice about their property. Mr. Curry is in Alaska now seeing about just how it will be handled."

Asked if she believed that such claims might also raise the question of alleged original rights of the descendants of the first Russian settlers, as well as those of the Aleuts who preceded them, Mrs. Bronson said, "Really, I haven't thought about that at all. But I do suppose that the whole question of aboriginal claims comes up in a thing like this."

Mrs. Bronson had heard that there had been an announcement that a Department of Interior move was on foot for the formation of 12 new Indian reservations in Alaska, she said that she had heard of this but understood that the Interior had withdrawn the statement as "premature." She was asked whether she felt that Interior was sympathetic to the most recent development in the Indian claims, and



she replied "that they certainly ought to be. After all, they are responsible for the preservation of Alaska."

The firm of Curry, Cohen and Bingham represented the Tlingit and Haida tribes at the time of their claims to aboriginal rights under the Interior regime of Harold L. Ickes.

#### Here Are Facts About T. D. Corp.

Richard G. Green, attorney who engineered the incorporation of Timber Development Corp., has been practicing law in New York State for several years and recently resumed practice in New York City after three and a half years in the Army. He is a graduate of St. Lawrence College and of the College of the City of New York. He stated that the Timber Development Corp. had been incorporated "quite recently" under the laws of the state of New York, and that the incorporators were "all people in my office."

Behind the corporation, however, are "men with capital who know what they are doing and who have had experience in this sort of thing," he said. A definite contract exists between Timber Development Corp. and the Kake and Kasaan tribes, he stated, and "my people are definitely committed to make the timber merchantable and sell it for them." Whether this would be in the form of standing timber, logs, pulpwood or manufactured lumber, he could not say.

Asked if a pulp mill might be in the picture he said that he did not know, but that it was not out of the question and that his clients could raise sufficient capital for this form of industry. He also said there would be the possibility of selling pulpwood to any projected pulp or paper mill that might be built in Alaska.

He refused to divulge the names of his clients, saying that his chief purpose in this was to protect them from the pressures which might be brought to bear by Congressmen. He said that both he and his clients felt that this was the fair approach to timber acquisition in Alaska "because unquestionably the timber belongs to the Indians, not to Congress or to the Forest Service."

Some observers contacted by **PULP & PAPER** speculated as to whether the acceleration of the Indian claims might be a manifestation of the old warfare between Interior and the Forest Service for "control" of Alaska. Henry M. Cohen had volunteered that "the poor Indians are caught between the Department of Interior and the Forest Service." But this aspect had not occurred to Mr. Green, he said.

Chief Forester Lyle Watts had already expressed himself as still against the Indian claims and when Mrs. Bronson released her story to the Associated Press, Mr. Watts stated that the Forest Service "would oppose it." Contacted by **PULP & PAPER**, Mr. Watts reiterated this position, but said he could not add to it until he found out further details from Alaska's Chief Forester Frank Heintzleman. Mr. Watts had not heard of the Timber Development Corp. prior to the AP dispatch.

## FATE OF KETCHIKAN MILL

All Southeastern Alaska is banking heavily on the prospect of a new 350-ton unbleached sulfite pulp mill which it is expected will be built on Ward's Cove, just seven miles north of Ketchikan.

This was evident in every port of call in Southeastern Alaska to a **PULP & PAPER** editor visiting the territory, who found all Alaskans—that means the investors in fishing enterprises as well as all other businesses—very sympathetic toward the project. Many look on it as almost "do or die" issue for the future prosperity of the territory. Such a mill would make market pulp for fine paper or even rayon plants in U. S.

As to whether Ketchikan's really tangible dream of a pulp mill will be realized is a little matter that will be decided on Dec. 15 in an auction sale in the U. S. Chief Forester's office in Washington, D. C. A total of 1500 million cubic feet of mostly hemlock and spruce goes on the block to support a Ward's Cove mill of 350 tons daily capacity at the outset and eventually 500 tons daily capacity. Water and dockage facilities are adequate there, and most of the necessary property for a townsite is reportedly already purchased from landowners.

A significant fact concerning costs of operation for a new pulp mill in Alaska is revealed in "the sample contract" for timber which the Forest Service has released. The Forest Service undertakes to keep any mill built in Alaska in a fair competitive position with mills in the State of Washington, nearest state to the territory and a state which now happens to be the biggest pulp producing state in the Union.

By this contract, the cost of stumpage, of logging and of towing combined—that is, the entire cost of raw wood material delivered to Ward's Cove mill—would not be more than 60% of the corresponding costs on Puget Sound in the State of Washington for a period of ten years. For the next ten years, the Forest Service undertakes to keep these costs at not more than 75% of those on Puget Sound. Thus, it is meaningless for the period at least to conjecture whether the Forest Service would require cutting on high, difficult mountainsides or on water level—the costs is what will count, in any case, and of course that is all that matters to investors. This provision, in effect, seems to guarantee that a mill could cut its timber right along shorelines and virtually dump trees right in the channels or bays, if the competitive situation warranted.

However, if pulp is made in Alaska in an unbleached mill, the prospect is that it may be further processed in the Pacific Northwest. Or, at any rate, that the unbleached sulfite pulp might be shipped in the same manner as it is now shipped from Washington and Oregon—mostly by rail to paper mills in the Lake States or Middle West and some by water to Atlantic Coast ports. Very little is now shipped by water from Oregon or Washington.

It has been reported that a car ferry from the mill to the transcontinental railroad terminal at Prince Rupert, B. C., just about 100 miles across water, may be provided if a mill is built. This might be a solution to any serious transportation difficulties. The present freight rate from Prince Rupert to inland points in eastern United States is exactly the same as from Portland, Ore., Seattle or other North Pacific points.



Mr. Rudy L. Kutter, left, who effective Oct. 16th became sales manager of the Hamilton, Ohio Div. of Black-Clawson Co. and Mr. Sam T. Weber, right, who will assume duties as assistant sales manager, according to announcement by Mr. M. E. Cody, vice president of the Hamilton Div.

#### New Filter Plant Completed at Nekoosa

Nekoosa-Edwards Paper Co.'s new filter plant began operation in October at the Nekoosa, Wis., kraft mill. The ultimate purpose of the installation is to team up with the nearly completed 150-ton bleach plant in producing maximum brightness of pulp. The modern gravity type filter plant is designed to filter 3,600 gallons of water per minute and plans of equipment are so arranged that additional beds can be installed if and when increased capacity is necessary. The use of pure spring water from the company's man-made Nepco Lake on Wisconsin River will continue.

The 52 by 75-foot filter plant building houses a coagulation basin and six filter beds using anthracite as a filtering medium. Anthracite is a finely ground anthracite coal.

#### Progress Being Made On Cleanese Mill

Heavy excavation in connection with the Columbia Cellulose Co. at Port Edward, B. C., new pulp subsidiary of Celanese Corp. of America, is expected to be completed by the end of January. Foundations will then be laid, and spring should see construction well under way.

Contracts for additional work will probably be announced shortly. Plans drafted at Montreal and New York are reported finally approved.

D. G. Stenstrom, west coast representative of Celanese Corp. of America, visited Port Edward recently with Axel Brandstrom, Seattle consulting forester, to study the pulpwood procurement program.



# BROWN CO.—ITS MILLS

## A New Manufacturing Program

Brown Company pioneered in sulfate production and, since the keystone of its expansion program is a new sulfate mill, it is fitting to prelude a discussion of the company's activities with a description of Brown Corporation's operations at La Tuque.

The La Tuque mill, the second sulfate mill on the North American continent, started operating in 1910. It was built primarily to supply unbleached Kraft to the Brown Company's paper mills in Berlin, and at its start, produced 50 tons a day. To meet the increasing demand for its production, the mill was gradually expanded, and 10 years later, in 1920, its capacity was 170 tons a day.

In 1927 Brown pioneered in the manufacture of sulfate pulps of high alpha content. The first grade produced, Duracel, was a semi-bleached pulp of sufficient toughness to serve as a substitute for rope fibre in sandpapers, tag and many other products. Subsequently, other high alpha pulps were developed. Among these were "White Husky," a bleached sulfate pulp with the strength of kraft and a high degree of whiteness, and Solka, a

pulp of greater purity, brighter color and more permanent whiteness, and high strength.

This interest in refined sulfate pulp was responsible for a number of major technical contributions to the kraft industry. Brown is a recognized leader in high quality bleached kraft.

The volume of La Tuque has grown to 450 tons daily.

La Tuque will gradually place more emphasis on the production of specification pulps as the new sulfate mill at Berlin supplies unbleached pulp to the Berlin mills and to that end bleachery and screen room additions are now under construction.

Substantial progress has been made on the modernization program at La Tuque. A second Minton dryer has been installed. Other improvements include a Combustion engineer recovery furnace, pulp storage building, and additions to the shop and storehouse. Further major mill improvements are planned for within the next two years.

The La Tuque mill also produces turpentine and spiral wound cores. The en-

tire operation is under Works Manager, W. B. Beckler, Jr.

While the La Tuque operations are centered about sulfate pulp, Brown Company's operations in Berlin, New Hampshire, include several fields.

### Use of Hardwoods

The Cascade and Riverside paper mills located at Berlin produce "Nibroc" Towels and "Nibroc" papers. Here too are the Burgess sulfite pulp mill, the tube mill, the Onco Plant, the chemical plant and the flocc plant. Serving these mills are six hydro-electric plants and two steam generating plants with reducing and condensing turbines.

A major modernization program is now underway at Berlin. A 60,000 ton sulfate mill is being built from which kraft pulp will be slushed directly to the Cascade paper mill. The new sulfate mill will be tied in with the present sulfite mill.

Both hardwoods and softwoods will be used in the pulpmaking processes in amounts calculated to insure a sustained wood supply. A second part of the modernization program is the installation of a new 196 inch towel machine at the Cascade Mill. This new machine named "Mister Nibroc" will make possible added production to meet the increased demands for "Nibroc" towels.

Although the major products at Berlin are pulp and paper, the other operations are significant.

### Onco Plant

The trade name "Onco" is well known in the shoe manufacturing industry. Brown is the foremost producer of purified cellulose innersoling which is sold directly to manufacturers of shoes and to allied fields. Onco innersoles are produced by Brown from the basic fibres to the final stamping of the Onco trade mark on the innersoles.

Onco is made in a two-line plant where the innersole base is formed. The sheet is impregnated and then laminated into various thicknesses. It is produced in rolls and sheets and die-cut into various sole pattern sizes for the shoe industry.

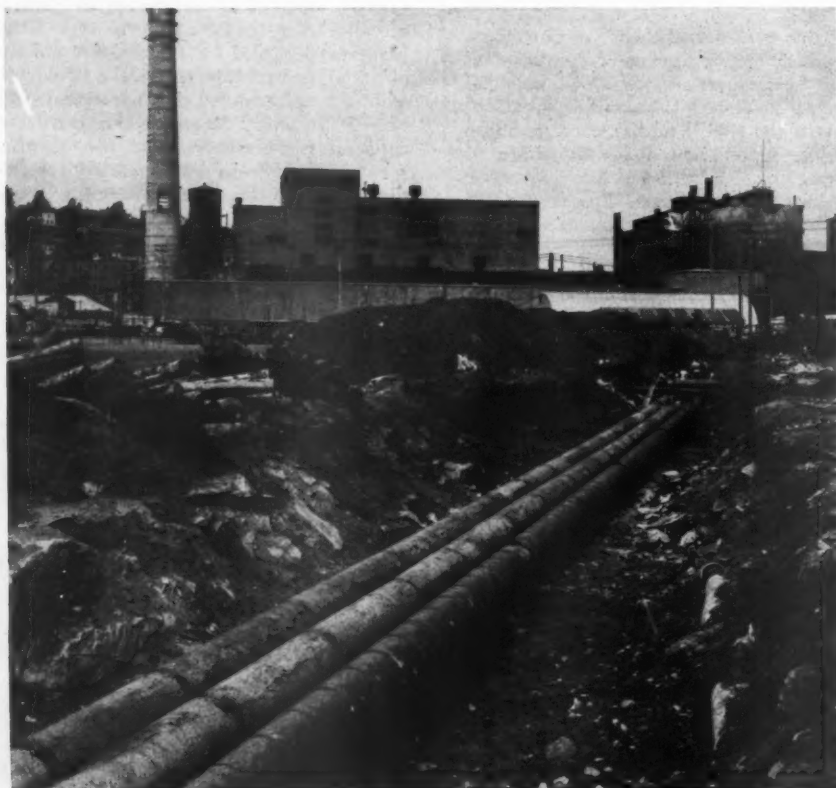
The manager of the Onco Manufacturing Division is Elmer Christiansen, who has been with Brown since 1908. He has been associated with Onco since its development days.

### Tube Mill

The present tube mill operation stems from the production of shell cases in World War I. The equipment is the result of the work of O. B. Brown and of Howard Parker, one of the many inventors of new processes and machinery that have been members of the Brown Company organization over the years.

Its chief products now are electrical

THIS INTERESTING PHOTO SHOWS start of pulp line from new Burgess kraft mill of Brown Company to Cascade paper mill, located at Berlin, N. H. From the new 60,000 ton kraft mill shown in background near final stage of construction, the pulp is slushed directly to the Cascade mill several miles away. This pipe-line idea for transport of pulp has proved the most economical stream-lined way up to distances of several miles, as has been done also in the case of two Wisconsin mills. The new kraft mill and the paper mill to which pulp is piped are both on the Androscoggin River. Our cover picture shows the completed kraft mill—the same mill shown above just before completion.





HERE IS THE RICE, BARTON paper machine, as it arrived at the Cascade Mill of Brown Company and was being installed in its position there. The new machine is described in this article.

conduit in sizes from two to six inches, and sewer and drain pipe in sizes from three to six inches inclusive. The latter is competing successfully with tile and concrete pipe and presents a number of advantages over those materials such as long lengths, lightness and ease of installation. The fact that fibre pipe is successful is not surprising to those who have seen the excellent condition of old sewer and water mains of redwood or cedar put down in California by the Spanish.

Brown's "Bermico" tubing is, additionally, impregnated with a moisture resistant material.

The conduit and pipe are made from a furnish of selected fibres specially treated. The material thus obtained is formed into tubing on steel mandrels and is dried bone-dry in the largest dryer of its type in the world. This dryer runs continuously 24 hours a day at closely controlled temperature and humidity and is operated in conjunction with elevators and overhead carriages for handling the tubing after the drying is completed. There is a mold loft for producing fittings.

The tubing goes directly from the dryer to the impregnating room where, after impregnation, the tubes are machined and finished. An important and unique characteristic of the impregnated tubing is its ability to take machining—better than wood and almost to the accuracy of metal.

Textile and paper, and rubber industries are users of returnable cores and shell rolls made at the Tube Mill.

A veteran Brown Company man, Harry Sweet, is manager of the Tubular Division. He came to Brown in 1911 and joined the Tube Mill staff in 1927, where he worked under Mr. Parker.

Before going into the pulp and pa-

### THIRD OF A SERIES

This is the third of an important series of exclusive articles prepared "in the field" by PULP & PAPER on Brown Company, a company which has pioneered in many developments of this industry.

Our first article on how it developed its outstanding research organization and program appeared in our February, 1947, issue.

The story of how its wood departments were organized and wood operations developed appeared in our July issue.

PULP & PAPER, in this series, has presented the first articles of such comprehensive scope ever published concerning Brown Company.

per operations of Brown in detail it will be of interest to discuss briefly the chemical plant, which began in 1898. It started as an electrolytic caustic-chlorine plant, one of the earliest in the country. The chlorine and caustic soda produced here goes chiefly to the company itself and to the local New England pulp industry. Part of the chlorine is further converted into chloroform of which Brown is a major producer, and into sodium hypochlorite for bleaching in the textile industry. The plant is managed by Henry Eaton, a Brown Company employee since 1917. Solka-Flo, purified wood cellulose, is another product.

Let us now direct our attention to the pulp making facilities of Brown. L. M. Cushing, a 25-year man, is manager of the Sulfite Mill and will take responsibility for the operation of the new sulfate mill as well. The Sulfite Mill, erected in 1892 and known as the Burgess Mill, is being modernized.

The pulps produced consist of specification grades of high alpha fibres made of hard and soft wood. The soft wood pulps are utilized mainly in technical papers where unusual fibre characteristics are

needed to meet end use specifications.

The high alpha hardwood fibres are utilized in cellophane as well as in specification papers.

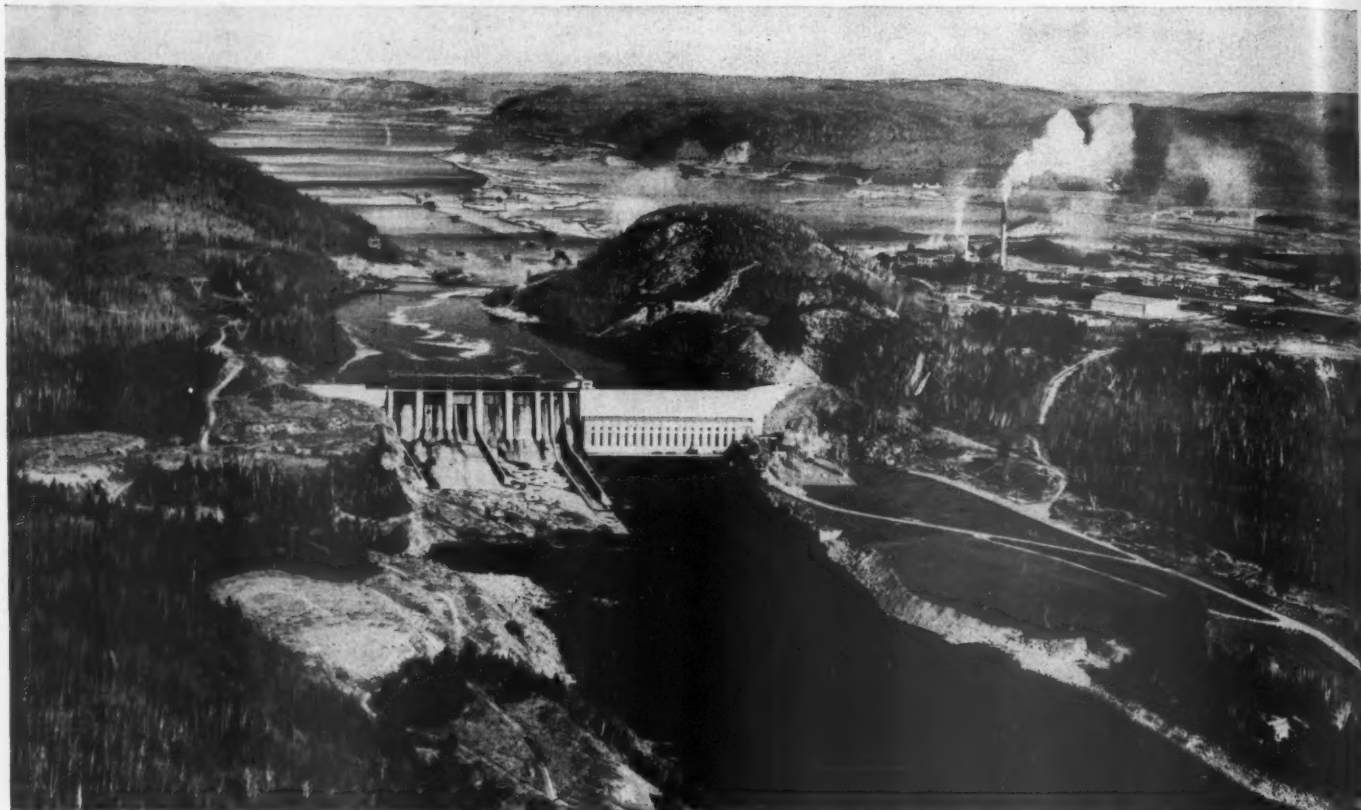
Hardwood or softwood comes from the yard piles to the mill on conveyors or from cars at the siding. Barking facilities include an Allis-Chalmers hydraulic barker as well as barking drums. A chain conveyor takes the pulpwood to the wood-room where it is chipped and the screened chips conveyed to the chip loft. One chipper is capable of taking logs up to 24 inches in diameter. The same wood handling and preparation system will serve both the sulfite and sulfate operations.

The present sulfite mill is essentially a double mill for the production of two different types of pulps. The digesters are 54 by 16 feet with a capacity up to 27 cords and 35,000 gallons of acid. The raw stock is washed and screened preparatory to at purification step and to bleaching, which is a multi-stage continuous process operated under close technical supervision. The stock passes through riffles to the final screening operation and from there to the dryer stock chests. The wet ends of the dryers were built by Improved Paper Machinery Co., and the dryer rolls by Bagley and Sewall.

The continuous pulp web is cut into sheets of varying size, depending on the sheet specifications. The stacked, cut sheets are transferred to a weighing table, adjusted to a given weight and conveyed by a roller system to a hydraulic press where the bale is compressed and wrapped. The completed bale is tied with wire on an automatic wire tying machine.

Water for the mill is taken from the Androscoggin River about a half mile upstream and brought to the filter system, which was installed by the Norwood





HERE IS SHOWN Brown Corporation's La Tuque, Quebec, mill at right. In center is St. Maurice Corporation dam. Brown Corporation is Canadian subsidiary of Brown Company of New Hampshire.

Engineering Co. Approximately 100 million gallons of water are filtered daily through this system.

The final modernized sulfite mill will have a daily capacity of about 200 tons. With the reduction in quantity, even more emphasis will be put on quality.

#### The Paper Mills

The two paper mills at Berlin, managed by Walter Johnson, are the Cascade Mill and the Riverside Mill. Mr. Johnson came to Brown Company from the Middle West, where he had wide experience in operating paper mills.

Here Brown Company pioneered in the manufacture of wet strength papers and bleached kraft papers, and has developed a diversified line of Kraft, Nibroc White, Nibroc Duracel and Nibroc Solkacel.

A 196-inch Rice Barton toweling machine is now in the process of installation and will be in production by 1948. The machine will operate at a speed of 1200 feet per minute and is equipped with a Yankee Dryer. The specifications for this machine were worked out in consultation with Mr. O. C. Schoenwerk, pulp and paper mill consulting engineer, Chicago, Illinois.

This additional capacity will enable Brown to meet the demand for "Nibroc Towels." The two 164-inch machines presently producing towels may be released in part for the manufacture of the company's other paper products.

Two additional 164-inch machines at

Cascade plus a 100-inch and a 102-inch machine at Riverside are currently producing specification papers.

The entire Cascade Mill will be rearranged for improved handling of raw materials as well as the finished product. New automatic converting equipment for towels is being installed. The new towel converting layout has been worked out in consultation with Mr. John E. Mulaney, mechanical consultant.

The raw material for the Cascade Mill, as well as for the Riverside Mill, are sulfate pulps, unbleached, bleached and specialty grades which at present come from La Tuque. As mentioned previously, a large proportion of this pulp will be slushed in pipelines from the new kraft mill.

#### The Kraft Mill

Before describing the new kraft pulp mill, it should be mentioned that the expansion of the toweling mill as well as the modernization of the sulfite mill is being done with an eye to possible future developments in the industry. The plan for the modernized Cascade Mill, for example, shows space for two additional machines.

Their type and nature have not been revealed, but what they are may well depend on the course of the industry. Both the sulfite and sulfate operations will be able to expand outwardly and still remain closely knit units.

The new Brown operations are nicely situated for economical transportation of

raw materials, finished product and the delivery of water and steam.

Now for the new kraft mill. The design of this plant was developed in consultation with Mr. O. C. Schoenwerk by the Brown Company Engineering Department of which Mr. C. A. Johnson is Chief Engineer.

Mr. Johnson has been with Brown Company for thirty-eight years. He was Chief Engineer at Brown Corporation, La



WENTWORTH BROWN, Vice President in Charge of Manufacturing, Brown Company, 500 Fifth Avenue, New York City.





AT LEFT, a Brown Company pulpwood stack. At right, a Brown Company log drive in a tortuous course of a New Hampshire river.

Tuque, Quebec, until 1939, when he took charge of the engineering in the Brown Company mills at Berlin, New Hampshire. The detailed engineering and the construction is being handled by the Rust Engineering Co., Pittsburgh, Pa. The design of this mill embodies all the most modern features of kraft pulp production. It is located so as to become an integral section of the present Burgess pulp mill. It is being erected on a new site adjacent to that mill and utilizes the same wood handling and wood preparation facilities as well as power and steam and other services of that mill. It is designed for a capacity of 200 tons of hardwood and softwood sulfate pulp.

The equipment for and the operation of the lime recovery unit, supplied by the General American Process Equipment Division of the General American Transportation Corp., may be of interest and is as follows: The filter cake, together with make-up limestone, are fed to the feed end of the rotary kiln which is 7' diameter x 250' long and follows the modern trend toward smaller diameter, longer kilns for fuel economy. It is rated at 70 tons of CaO per 24 hours. The kiln shell is made of A-70 flange grade steel  $\frac{5}{8}$ " thick. The nose ring is of cast iron as is the flue duct. The kiln is equipped with four, 14" tires of the new floating design, and eight water cooled, supporting rollers 36" diameter x 16" face of cast steel. These rollers are supported by 16 bearings, bearing housings are of welded steel construction. The lubrication system is new to lime kiln design. The Bowser forced feed lubrication with heat exchangers and strainers is used. This makes cooling of the lubricating oil possible when the kiln is running hot under normal operation.

The flexible kiln seals to exclude false air are of a new design taken from rotary

dryer operation. They are fabricated from copper and asbestos thus eliminating some of the difficulties formerly experienced in keeping the kiln centered in the nose ring and the flue duct. A 12½" face girth gear is driven by a 40 horse power D.C. motor.

There is a wet scrubber dust collector, motor operated Louvre damper, ribbon conveyor feeded, bucket elevator for limestone, Ross chain feeder and oil burning equipment together with a completely equipped panel board and instruments (including carbon dioxide indicator, draft

indicators at six points in the system, oil temperature recorder, and pressure gauges).

Other details include: Eight by eight foot straight side burned lime bin; twelve by twelve foot straight side limestone bin; hot lime drag and bucket elevator; lime and limestone feeders; rotary slaker; screw type classifier; three Turbo-mixers with stainless steel open-tilted Turbo impellers; Worthite centrifugal milk-of-lime pumps; white liquor clarifier; mud washer; green liquor clarifier; washing thickener for drags washing; diaphragm

At a recent Brown Company sales meeting in the Hotel Roosevelt, New York: WALTER JOHNSON, Mill Superintendent of Brown Company's Cascade Mill at Berlin, N. H. (standing at left), outlines details of the giant new Nibroc Towel Machine made by Rice, Barton and soon to go into production. Seated left to right: W. A. LITTLEFIELD, R. J. VAN NOSTRAND, H. R. TITUS, H. J. HUMPHREYS and DOWNING P. BROWN, Vice President in charge of sales.



pumps for the four thickeners; centrifugal pumps for feeding the filter; stainless steel heat exchanger; Conkey filter with all accessories; liquor storage complete with instruments and controls.

Because the slaker classifier set-up is somewhat different from that normally used by kraft mills, a word of description is in order. This slaker is a rotary type lined with concrete to reduce abrasion and corrosion and is fitted with a stainless steel screen on the discharge end. The undersize particles from the screen passes to a screw type classifier which makes a 65-mesh separation. The ribbon of the screw classifier is of stainless steel.

The four thickeners (the white liquor clarifier, the green liquor clarifier, the lime mud washer and the dregs washer) are of General American's new design; equipped with hydraulic lifting devices. All of these units are equipped with stainless steel parts where air enters the units with the incoming feed to reduce corrosion. The lime mud filter is provided with Monel metal filtering media and Monel expanded metal backing screen.

The four welded digesters furnished by General American are 11'-2" I.D. by 48' overall height, 3,800 cu. ft. capacity and designed for 125 pounds pressure. They are equipped with Fibre Making Processes, Inc. bottom screens and are arranged for direct and indirect cooking. The digesters will discharge into two blow tanks, each 26 x 18 feet with agitators and dilution nozzles.

A six body, quintuple effect evaporator of the long tube type, furnished by Gen-

eral American will concentrate the black liquor from 15 percent solids to 55 percent solids for combustion in the recovery furnace. The unit is designed with equal heating surface in each of the six bodies; a vacuum of 26 inches will be used in the fifth effect. Heat will be supplied by steam at 35 pounds pressure. The temperature of the condensing water will be 70 degrees F. The barometric condenser is equipped with a steam jet ejector. The unit will give an economy of 4.04 pounds of evaporate per pound of steam furnished. Six tangential inlets and centrifugal type entrainment separators are claimed to give entrainment losses below 0.1 percent of the total solids fed to each body.

Black liquor pumps are of high alloy steel. Carbon steel tubes will be provided in all but the first two effects where stainless steel is used. The liquor deflectors in the first effect vapor bodies are 20 percent, stainless clad on the impingement side. The lower part of the two vapor bodies of the first effect are lined with stainless alloy No. 304. The tube sheet in the first two heating elements is of 20 percent, stainless clad. The evaporator system is completely instrumented and its operation is mainly automatic.

There will be three-cylinder washers supplied by the Oliver United Filter Co. on the raw stock designed to operate on hardwood and softwood intermittently.

The recovery furnace, supplied by Combustion Engineering Co., is designed for 680,000 pounds of solids in 24 hours with steam generated at 450 pounds pressure. The vertical type precipitator is to be

built by the Research Corporation. The 250 foot concrete recovery furnace stack is of the same type as that used at La Tuque with an acid-proof inner lining.

The installation will be one of the most modern pulp mills in the U. S. Enough has been indicated here to show the direction of the Brown Company thinking in the latter half of this century. It is toward up-to-the-minute operations with the latest equipment, utilizing a sustained yield of hardwood and softwood timber in ample quantity for the support of such operations. The development of the company will be based on its products—"Nibroc" towels and paper, high quality specification pulps, Onco innersoling, Bermico Tubing. Brown is getting set for the new cellulose age.

## Cash Heads New Mill At Brown Company

C. P. R. CASH, in charge of starting up Brown's new kraft mill in Berlin. He will head up all pulp production. Here he not only had to cope with PULP & PAPER's cameraman, but also a bright sun in his eyes.



C. R. P. Cash, since 1945 superintendent of Brown Corp.'s mill at La Tuque, Quebec, soon will assume new duties in the pulp division of Brown Co. at Berlin, it is announced by L. M. Cushing, manager of the pulp division.

Mr. Cushing also announced that Lamar M. Murray, who has had a wide experience in the kraft pulp field, has joined the pulp division. Mr. Cash will take charge of starting up the new Berlin kraft mill, following which he will assume the duties of general superintendent of pulp production for Brown Co.

Mr. Cash went to the state of Washington to work first for Crown Willamette and from 1926 to 1930 for the Cascade Paper Co., as pulp superintendent. He was first chairman of the Coast TAPPI. Later he was in a supervisory capacity with St. Regis Kraft and chief chemist for St. Helens Pulp & Paper. From 1935 to 1945, he was assistant superintendent in the kraft and soda mills of Champion Paper Co. in Canton, N. C.

Mr. Murray, recently spent considerable time in Mexico, where he supervised the completion of and set in operation a 120-ton kraft mill of Compania Industrial De Atenquique. He had further kraft experience with the North Carolina Pulp Co., Plymouth, N. C., at the Hollingsworth & Whitney mill, Mobile, Ala., and at the Florida Pulp & Paper Co., Pensacola, where he was assistant pulp mill superintendent.

## Allan Hyer Joins Bagley & Sewall

Allan Hyer became sales manager for The Bagley & Sewall Co., papermaking machinery manufacturers, of Watertown, N.Y., as of Nov. 1. Mr. Hyer resigned a similar position which he had held for many years in the Black-Clawson organization in Hamilton, O., to accept his new responsibilities.

Although Mr. Hyer was already well known everywhere paper and pulp are made in this country and in many other lands, too, his wartime service to the industry and nation was one of the peak points of his long career. Loaned by Black-Clawson to the government, Mr. Hyer directed the distribution of machinery and equipment in the pulp and paper industry for the War Production Board and its predecessor agencies. He is one of the very few men in the Pulp and Paper Division of WPB and earlier of the Office of Production Management whose term in Washington, D. C., spanned the entire period of the war and war preparation.

His long tenure was mute evidence of the fact that Mr. Hyer must have handled one of the most delicate and critical assignments in industry with great tact and good judgment. He worked out a procedure of priorities for paper and pulp machinery which was based on the im-



ALLAN HYER, who became Sales Manager of The Bagley & Sewall Co., Watertown, N. Y., as of Nov. 1. Mr. Hyer is widely known for his important service during World War II when he directed all distribution of equipment in pulp and paper field.

portance of end products to the war effort, but even with these controlling factors, his job was far from an easy one. Because of early disorganization of the industrial war effort, and failure of top government officials to anticipate how important pulp and paper would be in the conduct of the war, Mr. Hyer and others called to Washington from the industry found a tremendous task facing them to change the course of pulp and paper manufacturing from one of intensifying restriction to increasing production. In allocating machinery, it required broad experience and foresight, also, to recognize the importance of equipment that extended the pulp yield from wood or otherwise saved and extended critical raw materials.



# New Quality Controls

## STATISTICS METHOD AIRED AT KALAMAZOO



**PROMINENT PARTICIPANTS** in Kalamazoo Valley TAPPI Section meeting at Columbia Hotel, Kalamazoo, Mich., on Nov. 6 (left to right): **HARRIS O. WARE**, Dairy Products Development, Paper Makers Chemical Dept., Hercules Powder Co., Parchment, Mich., who served on a panel on Statistical Quality Control; **RICHARD T. TRELFA**, Development Engineer, PMC Dept., Hercules, Parchment, Mich., who was special Chairman appointed for the Nov. 6 meeting, and **DR. TRUMAN A. PASCOE**, Technical Director, Nekoosa-Edwards Paper Co., Port Edwards, Wis., who was featured speaker on subject of Statistical Quality Control (Dr. Pascoe heads the national statistics committee for TAPPI). Art Dreshfield, consulting engineer of La Grange, Ill., also was on the Kalamazoo panel.

Because of the current trend in up-grading of pulp and paper products—to take advantage of the strong quality market today—and because of the increased demand for greater uniformity of product, a round-table discussion and an address by Dr. Truman A. Pascoe at the Nov. 6 meeting of the Kalamazoo Valley TAPPI Section was of more than just local interest.

Practical aspects of statistical quality control was the subject of the paper by Dr. Pascoe, who is technical director of Nekoosa-Edwards Paper Co., Port Edwards, Wis. Indicating the interest in this subject is that fact that it will be on the agenda also of the Dominion-wide Canadian technical meeting in Montreal in January and very likely at National TAPPI in New York in February.

So, the Kalamazoo, Mich., local meeting might be called a pre-view session on a subject which is going to loom large in pulp and paper manufacturing. Interest was indicated by the numerous questions from the floor at the Kalamazoo meeting, directed to the panel which included Dr. Pascoe, Harris O. Ware, in charge of dairy products development at the Hercules Powder Co. plant in Paramount, Mich., and Art Dreshfield, consulting engineer who now headquarters in La Grange, Ill. The Michigan TAPPI

group chose a top expert in inviting Dr. Pascoe from across the big lake because he heads up TAPPI's national committee on statistics.

Prior to his talk he told a **PULP & PAPER** representative present that metallurgical and electrical industries have led the way in developing these statistical quality controls, which are now being adapted to the paper industry. It is just another example of how the paper industry is being transformed from "an art" to "a science" as so many paper industry executives have pointed out in recent years.

This quality control meeting held in Hotel Columbia in Kalamazoo (this has been the regular "first Thursday of the month" meeting place of that group for about two years) was chairmanned by Richard T. Trelfa of Hercules' plant at Parchment. This section picks a different chairman for each meeting, but the section chairman for the year is Leon Mimms of Kalamazoo Paper Co.

What Dr. Pascoe suggested to his audience was that certain statistical quality controls developed by W. A. Shewart ("Economic Control of Quality in Manufactured Product," D. Van Nostrand Co., Inc., New York, 1931) can be adapted, in their simplest forms, to serve many of the pulp and paper industry's needs. Also, he held that many data obtained by current

systems can be used and made to yield additional information for process control.

One of the big Wisconsin paper companies is already making extensive use of statistical control methods for getting more information and more precise control. In addition, Nekoosa-Edwards Paper Co. where Dr. Pascoe is technical director, is planning to put into practice his ideas as soon as facilities can be developed.

We have taken the liberty of condensing the paper given by Dr. Pascoe and this condensation follows:

By **DR. T. A. PASCOE**

**Tech. Dir., Nekoosa-Edwards Paper Co.**

Presenting testing and inspection methods generally have yielded objective results to supplant purely subjective information. The data obtained, however, was spot information with no further intention than indicating the momentary state of the manufacturing operation. Often the information came late after defective products had been produced.

In contrast to the static system just mentioned is the modern system of statistical quality control that takes the data from regular tests and by proper study of them makes them serve a dynamic purpose. This purpose is to prevent the production of defective or widely varying product and to indicate ability to meet specifications.

A proper appreciation of these tools does require a new point of view. The theories on which the system is built and the mechanics of practically using them are not difficult. Most of the principles of statistics, on close examination turn out to be just common sense organized into useful form.

Statistical quality control is based on the fact that all manufacturing processes exhibit inherent variations. These variations are due to chance causes. The causes of variations outside this system of inevitable chance causes can be traced down to their source and eliminated.

The key to the foregoing explanation is that the causes of the inherent variations are *chance* causes. It will be shown later that this fact allows the identification of the two kinds of variables.

The main objectives that can usually be realized through the use of Shewart's methods are:

1. Improvements in product quality.
2. Reduction of spoilage and rework.
3. Elimination of unwarranted adjustments (when to leave the process alone).
4. Discovery of natural tolerances, ability to meet specifications.
5. Lower inspection costs.

The use of the Shewart control systems has resulted in the use of several common expressions that may require definition. When a process is operating under chance variations only it is said to be *stable* and in *control*. When non-chance caused variables force a process out of its *stable* state the disturbing factors are called *assignable causes*, and the process is said to be *out of control*. Any effort of the operator to bring the process under control is called *correcting* the process.

### Shewart Tools for Statistical Control

Although a number of the methods used by mathematical statisticians can be used in quality control work, the four techniques proposed by Shewart have received preference because of their general suitability for routine work. These are:

1. Control charts for measurable quality char-





ARTHUR C. DRESHFIELD, Consulting Engineer of 401 West Elm St., La Grange, Ill., who was a member of panel on statistical quality control at Kalamazoo TAPPI meeting Nov. 6.



IN INDUSTRY NEWS DURING PAST MONTH (left to right):

E. W. ZABRISKIE, whose appointment as Industrial Engineer for National Paper Products Co., Division of Crown Zellerbach Corp., Carthage, N. Y., is announced by R. J. Schadt, Resident Manager. Mr. Zabriskie graduated from St. Lawrence Univ., Canton, N. Y., and was formerly with Davison Chemical Corp. and Friez Instrument Div. of Bendix Aviation Corp.

FREDERICK C. GOODWILL, Technical Director, St. Regis Paper Co., Deferiet, N. Y., one of four new nominees for the National Executive Committee of TAPPI, to be elected in February. Other nominees are W. F. Gillespie (Gaylord Container) for Pres.; Albert Bachman (Missisquoi Corp.) for Vice Pres.; Harold Bialkowski (Weyerhaeuser), Willis Lincoln (Inland Container) and Albert Sherwood (Sutherland Paper) for new Exec. Committee members.

LEE S. COULTER, promoted to Manager of Industrial Sales Division of American Hoist and Derrick Co., St. Paul, Minn., according to Stanley M. Hunter, Vice Pres. (Sales). This company makes the new Dieselelectric American locomotive crane, of which there have been several recent deliveries to mill wood yards.

RUSSELL F. ERICKSON, new Assistant Resident Mgr., Fernandina, Fla., Division of Rayonier Incorporated, who was Plant Engineer since Jan. 1, 1946. He was formerly Plant Engineer with H & W Co., in Mobile and graduated from U. of Minnesota and took p.g. work at Columbia and Pratt Institute.

acteristics. These are the so-called  $\bar{X}$  and R (average and range) or  $\bar{X}$  and  $\sigma$  (average and standard deviation charts).

2. Control chart for fraction defective or the p chart.

3. Control chart for the number of defects per unit or c charts.

4. The quality assurance given by any sampling acceptance theory.

### Methods Useful in Pulp and Paper Industry

The Shewhart methods were worked out and have been used a great deal in the quality control of discrete articles such as machine parts and subassemblies or other processes yielding products that are separate units. The peculiar continuous nature of the manufacturing processes in the pulp and paper industry offers certain obstacles to the simple adoption of these tools. For the same reasons much of the literature on the subject is not very helpful to the novice.

Certain peculiar characteristics of pulp and paper complicate the problems involved in inspection decisions. There are very few inspection situations ever encountered where the clear cut accept or reject scheme of testing can be used. This will rule out any extensive use of the p chart technique. The fact that many defects or departures from specifications do not often render the product unusable make the problem appear formidable. A further characteristic that is peculiar to paper is its two directional nature. This requires careful analysis when designing any sampling system for tests. In order to keep the present discussion within bounds only machine direction variations will be considered.

A further consideration hinges on the fact that pulp and paper production generally involves large batches in batch systems as in pulping and continuous processes that do not lend themselves to frequent sampling. Test results therefore should be of use as obtained. This state of affairs makes it desirable to make minor modifications in the conventional techniques, especially with the regard to the matter of choosing rational sub groups. In other words it is necessary to cut the coat to suit the cloth.

### Control Charts for Measurable Characteristics

This discussion will be confined to a consideration of some typical average and standard deviation (so-called  $\bar{X}$  and  $\sigma$  charts).

Fig. 1 shows a control chart based on basis weight of a wrapping paper as the variable.

Fig. 2 illustrates a similar chart based on the basis weight of a heavy saturating paper. The weights shown represent oven dry weight in grams of a standard size of disc cut from each roll.

The important features of charts of this type are: a center line representing the mean or a nominal value, the upper control limit and the lower control limit. All points representing measurements that fall within the control limits indicate that the process is in control. All points falling outside these limits represent instances when the process is out of control.

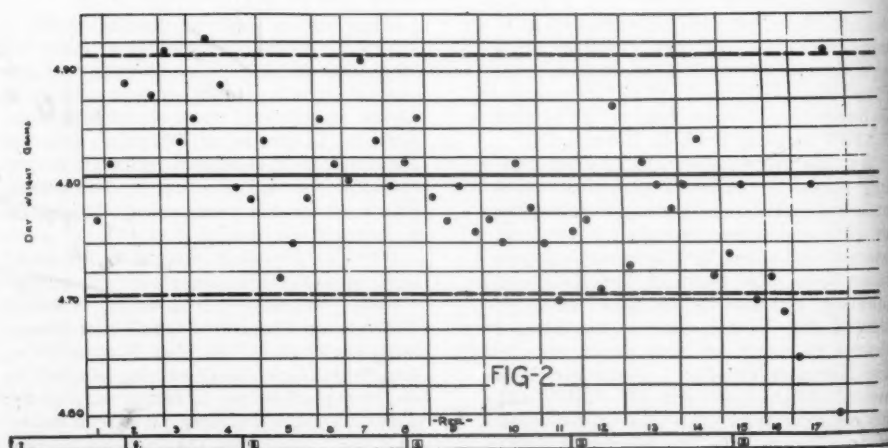
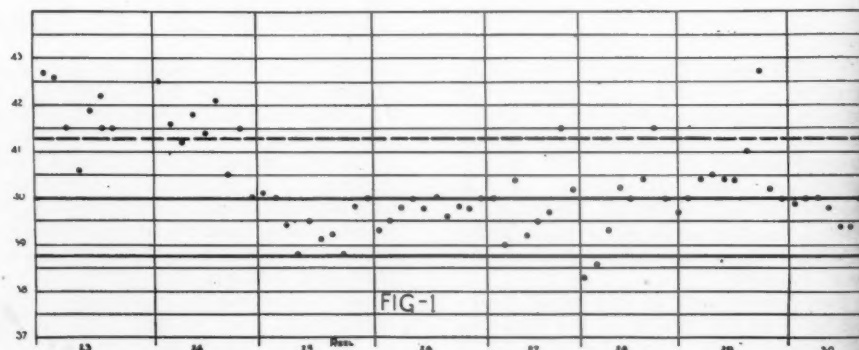
### Starting the Control Chart

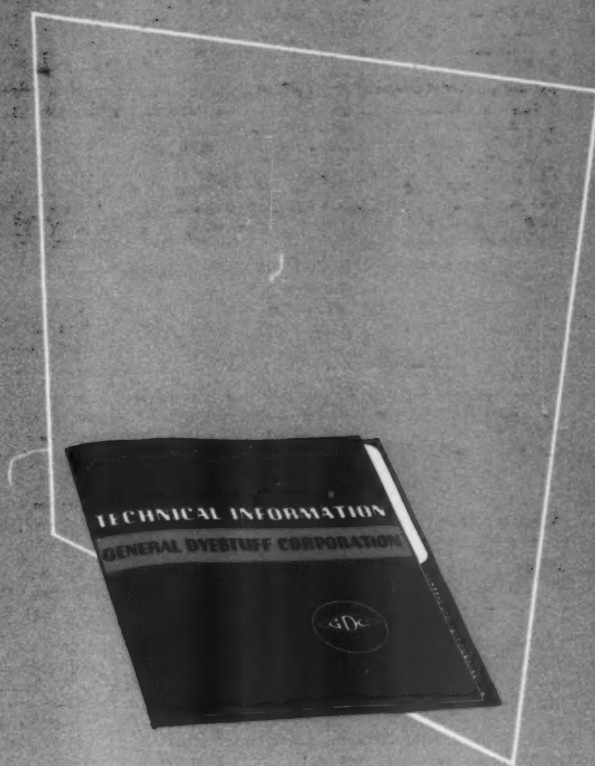
Since all processes possess unique characteristics with respect to inherent variations no

specific formula can be specified for setting up the control chart. Rather each chart must be constructed using representative samples of test results gathered from the process to be studied. This preliminary information can be obtained by running a series of tests in the same manner as will be the case in the subsequent regular operation of the control system. Often the data can be obtained from past tests that have been accumulated as a result of routine testing. In the latter case care should be exercised to be certain that the sampling and testing used to obtain the data, are the same as will be sub-

sequently used, also that the information represents the process operation in point of time. It is desirable to have 30 to 50 values on which to build the trial control chart.

With the trial data at hand, the first operation is to calculate the mean. The next step is find some measure of variation or dispersion of the inherent variations. This information will allow the setting of the control limits. There are a number of conventional formulae for the calculation of the best measure of dispersion, i.e., the standard deviation. For the purposes of this discussion a method will be examined that





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is simple mathematically and easy to understand involving only 2 items. This method for calculating the standard deviation is based on simple relation.

$$\sigma = \frac{x_1 - x_2}{\sqrt{2}}$$

where  $\sigma$  = estimate of population standard deviation.

$x_1$  and  $x_2$  = two successive values for the variable.

The pooled working equation based on the same principle is:

$$\sigma = \frac{1}{\sqrt{2}} \frac{\sqrt{e_1^2 + e_2^2 + e_3^2 + \dots + e_m^2}}{m}$$

$e_1, e_2, e_3$  = successive differences.  
 $m$  = number of pairs of items.

The next step is to set up the control limits. These so-called 3 sigma limits are so chosen that in a purely chance distribution of variables only 2.7 in 1000 instances would a point fall outside the limits and thus indicate lack of control falsely.

The control limits are calculated using the equation:  $3 \times \sigma$ .

Upper control limit =  $\bar{X} + 3\sigma$ . Where  $\bar{X}$  = the series of variables.

There may be problems encountered in which the use of 3 sigma limits would be inadvisable because of the latitude that would be allowed. In such instances it is recommended that two sigma limits be used until the usual improvement has been realized. The added uncertainty regarding identification of out of control points will not be serious in most cases.

The control chart is constructed using cross section paper with vertical axis is used to show the statistical values such as  $\bar{X}$  the control limits and intermediate values for the quality measured. The horizontal axis is used to designate some identifying information for the data such as dates, times test numbers, etc.

With the foregoing background a more detailed examination of Figs. 1 and 2 will show the information to be derived from the control chart. At the start Fig. 1 shows the basis weight out of control in the direction of heavy paper. During the making of the second reel a correction was made which almost proved to be an over correction. Thereafter the process remained in control well centered on the nominal wt. which in this case takes the place of  $\bar{X}$  line. The occasional points outside the control limits might warrant a search for their causes.

Fig. 2 shows again that the run started with points out of control. A correction was made that caused the greater part of the run to be in control. This chart illustrates the point that the control chart not only indicates when to take corrective measures but equally important when to leave the process alone. The last reels on the chart were made after a shift change by an operator that apparently felt that starting the shift meant making adjustments. The result is obvious that a well controlled process was thrown out of control.

Both charts illustrate a further feature that has been observed. This concerns the fact that the operators soon learn the significance of the chart and in most of them a competitive spirit is aroused that causes them to do a better job than they would likely do without the visual evidence so prominently before them.

Because of this general beneficial effect on the conduct of the processes, it is important that the charts constructed using trial limits be carefully watched. Very often it will be advisable to revise the control limits based on operations showing less over-all variation. These revised control limits will more nearly measure the inherent variations and will become more sensitive in showing out of control points.

As this general improvement in process control takes place and the quality control supervisor becomes more acquainted with the use of his tools, it may become advisable to adopt a supplementary procedure that is somewhat more sensitive in showing out of control points and shifts in the mean. This supplementary work can be carried out without interfering with or complicating the routine control pro-

gram. Periodic studies using the method outlined below will give a more critical picture of the state of process control. The same information collected and used in the routine program is used in this supplementary work.

This modification consists of dividing the data into rational sub groups of 4 or more per sub group. At this stage of the evolution of the control technique the use of sub groups loses some of the objections stated before for two reasons. In the first place the improvement in process control makes it less imperative to have frequent indications of the state of the process. Secondly the personnel will have developed the ability to handle the somewhat more involved technique.

A good starting basis for sub grouping is on the order of production. Further experience may suggest a more rational basis that will yield more information.

After dividing the data into sub groups, the mean  $\bar{X}$  for each sub group and the average of the sub groups means  $\bar{\bar{X}}$  are calculated. The range  $\bar{R}$  (highest-lowest value) for each sub group is found and the average range for all groups  $\bar{R}$  is computed.

The standard deviation can then be calculated from the information at hand using the relation:

$$\sigma' = \frac{\bar{R}}{d_2}$$

where  $\sigma'$  is the standard deviation and  $d_2$  is a factor that must be obtained from published tables.

The value for  $3\sigma\bar{X}$  is calculated using the relation:

$$\sigma\bar{X} = 3\sigma' \frac{\bar{R}}{d_2}$$

where  $\sigma\bar{X}$  = the standard deviation from the mean and  $n$  = number in the sub group.

The chart is constructed then with  $\bar{\bar{X}}$  and upper and lower control limit lines.

#### Lack of Control and Corrective Action

The fundamental theory of control chart technique is that points falling outside the control limits call for an investigation to discover the assignable cause or causes and initiate the proper corrective action. No conventional rules can be laid down to guide such investigations. Common sense and study will be required in each case.

There are three ways in which lack of control will show on the control chart:

A common type encountered in paper manufacturing is a shift in average with little or no change in dispersion. This phenomenon is shown in the first portion of Figure 1.

A second type shows a change in dispersion with no change in average. This kind of chart is encountered in connection with pulping control or bleaching or other processes influenced to a great extent by the skill of the operators.

A third type is one in which both average and dispersion change.

Economic considerations must often be balanced against the improvement in quality obtained by applying corrective measures.

#### Summary

Although there are distinct differences between pulp and paper manufacture and the industries in which statistical quality control has been most used, control chart techniques can be used in the control of many of this industry's processes. The main advantage gained through the use of these methods is guidance in when to take corrective action and when to leave the process alone. It is possible for relatively inexperienced personnel to start using the simplest versions of these control methods and develop skill through actual use. There is a good possibility that the improvements in quality and control will accrue during this apprentice period.

Grateful acknowledgement is made to Dr. Geoffrey Beall of the staff of the Institute of Paper Chemistry for numerous ideas used in this discussion and advice given during its preparation. Guidance was obtained through the use of E. L. Grant's recent book (McGraw-Hill Book Co., N. Y. C.) "Statistical Quality Control."

## Big Alton Machine Viewed by TAPPI Group

A tour of inspection of Alton Board Co.'s remarkable new seven-cylinder high speed board machine — the ultimate in its size and type ever made — was a highlight of the recent TAPPI Fibrous Agricultural Residues meeting held in Alton, Ill., Oct. 23-24. About 100 attended. Sessions were held at the company's offices.

R. G. Goodwin of Paper and Industrial Appliances, New York, described the Morley continuous pulper for straw. Mr. Morley, who is manager of the Thames Board Mills, Penfleet, England, was present and responded to questions. The system consists in the passage of chopped straw through a series of pipes, 23 inches, i. d., and its continuous treatment with 10% caustic soda, based on weight of the straw. About 70% yield is claimed as well as a throughput of 38 tons per day. The cycle is about 20 minutes. This represents 27 bales of straw at 84 pounds each per hour. The pipes are made of mild steel. The steam pressure was 20 lbs. per sq. in. The entire installation requires about 6000 cubic feet.

## Program Planned For Montreal Meeting

A wide range of subjects will be dealt with at the 1948 annual meeting of the technical section, Canadian Pulp and Paper Association, when it meets at Mount Royal Hotel, Montreal, on January 28, 29 and 30. Meetings of the woodlands section of the association will be held simultaneously in the same hotel.

The program has been virtually finalized and will comprise papers on the following subjects:

By-products from kraft pulping of pine; effect of variable in the alkaline pulping of spruce; lime burning; industrial relations; standardization of general and cost accounting methods;

Collection of operational control data; slime control; headbox design; use of statistics in quality control, and organization of instrument department and training of instrument personnel;

Use of Lithcote in the paper industry; neutral sulfite pulping of wood; use of liquid sulfur dioxide for acid manufacture; conservation; pulp evaluation; use of the Bauer stock classifier; use of large capacity centrifugal blowers, and vacuum pumps and suction rolls.

## Superintendents Meet

Seventy-five members of the Connecticut Valley Division of the Superintendents' Association met Oct. 25 at a regular meeting dinner at the Hotel Sheraton, Springfield, Mass.

Speakers were J. L. Snyder, Lukenweld, Inc., who gave his talk on "Jacketed Drier Rolls for More Production," and F. F. Frothingham, Bird Machine Co., who spoke on "The Bird Dier and Its Application to the Cleaning of Pulp and Paper."

Division Chairman R. C. Winkler presided, and was assisted by Arthur C. Loomis, secretary-treasurer.





AT PHILADELPHIA-WILMINGTON TAPPI meeting (left to right):

WILBUR F. GILLESPIE, Tech. Dir., Gaylord Container Corp., National President of TAPPI, and J. W. HEMPHILL, Johns-Manville Corp., General Chairman of the Engineers Conference;

ED MOLINE, Glassine Paper Co., talks with LOIS HANS, Secretary of Delaware Valley Section of TAPPI;

KRISTIAN FOUGNER, recently from Norway and now with Kennebec Paper Co.; E. H. OLMSTED, Eaton-Dykeman; and F. L. CALIFANO, and H. R. STEVENS, both of The Flintkote Co.

# INDUSTRY ENGINEERS NOW LOOM AS Largest Tappi Group

On opening day of the Second Engineering Conference of the pulp and paper industry W. F. Gillespie, president of TAPPI, reminded the gathering that the technical organization has been founded originally by engineers and that its first conception was as a group primarily concerned with mill engineering. However, he pointed out, the swift development of chemical processes, with the consequent influx of chemists into important roles in the industry, somewhat changed the character of the TAPPI.

But with the First Engineering Conference, held in Milwaukee last year, the engineers of TAPPI once again became visible factors as a group, and launched a specific program designed to keep abreast of engineering progress in the industry.

The change is no reflection on TAPPI as an organization, Mr. Gillespie pointed out in an interview with **PULP & PAPER** in Philadelphia's Bellevue-Stratford hotel, where the majority of the Second Conference meetings were held Nov. 3-5.

"On the contrary," he said, "the change is a tribute to the leadership of TAPPI throughout the years. We don't want to plan so far ahead that we work up an inflexible policy which cannot meet the changes in the industry. It looks as if the engineers may comprise the largest group in TAPPI before long, but this does not mean that they are more important to the whole than any other group within the organization."

The growth and power of the engineers was apparent in that almost 300 more attended this year's conference than were present at the founding gathering last year in Milwaukee. More than 470 registered at Philadelphia, and at the Pusey & Jones banquet on the night of the 4th at Wilmington there were over 600 present. Many who could not attend the entire session made a flying trip to be with the

group on that night, among them Gunnar Nicholson, ex-president of TAPPI, under whose regime the engineers' meetings began.

General chairman of the Engineering Division Committees was J. W. Hemphill, Johns-Manville Corp., and naturally on his shoulders fell the bulk of the responsibility for the well-planned, tightly-knit meeting notable for its keen concentration and full attendance in the meeting rooms. Right with him on the planning were Milton Jacobs, Chas. T. Main, Inc., chairman of the Mill Design and Economic Aspects Committee; George R. Wadleigh, consulting engineer, on Materials Handling; John E. A. Warner, Robert Gair Co., on Steam and Power; G. H. Pringle, Mead Corp., on Mill Maintenance and Materials; and A. E. Montgomery, J. O. Ross Engineering Co., on Drying and Ventilating.

The smoothness of the meeting was the more remarkable when it is understood that the Bellevue-Stratford hotel was partially strike-bound. It was expected that the dispute would be settled by the time of the convention. But the long experience of Secretary-Treasurer R. G. Macdonald and his committees counted in the pinch, and except for the fact that they had to wrestle their own bags and occasionally go scouting for soap and tissue, TAPPI members discerned no dislocations in the operation of the meeting. However, since catering was crippled at the convention hotel, the Monday night banquet was at the Adelphia, and luncheons—except on "Pusey Jones day"—were where they could be had.

## Mill Design Session

The conference was opened Monday, Nov. 5 in the Rose Garden room of the Bellevue-Stratford by Mr. Gillespie and Mr. Hemphill, then launched immediately into the Mill Design session

under the chairmanship of Mr. Jacobs.

R. R. Adams, J. E. Sirrine & Co., spoke on "Treatment of Surface Water Supplies for Pulp and Paper Mills," discussing the treatment of surface waters in the Southeast area. He stressed the need for varying the types of treatments in this area due to different kinds of water in localities from the Blue Ridge mountains to the coastal rivers of the Carolinas, and of Georgia and Florida. Mr. Adams divided the stages of water treatments as follows: (1) plain sedimentation; (2) sterilization; (3) chemical feeding; (4) chemical mixing; (5) flocculation; (6) sedimentation; (7) filtration, (8) pH corrections; and (9) clear water storage.

C. E. Cass, Marathon Corp., in his "Centralized Planning and Control of Plant Layouts" talk, stressed the need for plant layout programs regardless of plant size. He advocated its establishment as a staff function which, he said, "will minimize the possibility of duplication and make long range planning possible." The functions of such a department should include the analysis and design of layouts for the manufacturing department, he said. He suggested making master layouts by using a flat plane with templates held in place by a transparent sheet. He said that flow lines, conveyors, and the like, could be indicated on the sheet and the whole assembly photostated for reference. He emphasized that a well organized plant layout program would materially reduce manufacturing costs—chiefly by reducing the amount of work in process, conserving floor space, improving handling methods, and providing a straight-line flow.

Movement of pulpwood should always be in the largest possible units, said C. E. Patch, of the Morton C. Tuttle Co., in his "Reminiscences of the Pulpwood Campaign." Mr. Patch went on with other

axioms in wood handling: Loading and unloading should be quick, holding the transporting unit the shortest possible idle time. Delays, counter-orders, changes of direction of movement, all add to costs, he stated. Wood yard foremen and employees are not the only ones responsible, his discussion brought out—the management must provide the proper equipment and facilities, and set up proper purchasing and inventory policies. Mr. Patch used slides to illustrate woodyard situations, and brought in adaptable examples from the pineapple and sugar industries of Hawaii.

### Drying and Ventilating

A. E. Montgomery, J. O. Ross Engineering Co., was a familiar figure as chairman of the Drying and Ventilating session in the afternoon. Leading off was C. H. Young, Midwest Fulton Machine Co., who spoke on "Steam Supply and Control Arrangements for Dryers." Then L. G. Janett, J. O. Ross Engineering Corp., discussed "Heating Water with Waste Heat"—and Chairman Montgomery finished up the day with his "Report on Field Investigations on Drying" by the TAPPI Committee.

Mr. Young's discussion was chiefly through a series of extremely well done projection slides which illustrated almost every arrangement possible for steam supply and control arrangement for dryers. Mr. Janett went into the methods of recovery of heat from paper machine exhaust air to heat white water, fresh water, or mill supply. He presented tabulated data and graphs to show water quantities heated, temperature rises, and resultant B.t.u. recovery totals. "Study of the possible uses for the heated water is of prime importance in exploring the possibilities of heat recovery," he said. He stated that in areas where seasonal water temperatures fluctuate widely, more uniformity of water temperatures on the wet end are desirable for quality paper.

Mr. Janett offered a resume on one board mill installation which indicated heating a large volume of mill supply water from an initial yearly average of water temperature of 59.4 degrees F. to a final yearly average of 101.3 degrees. This installation showed a yearly steam saving of approximately \$8930, using an average steam cost of \$0.338 per thousand pounds of steam.

"The efficiency of any recovery system is affected by the quality of the paper machine exhaust air," Mr. Janett pointed out. "The variables of air quality and quantity between machines operating under widely different conditions necessitates considerable compilation of empirical data to arrive at rational design of water heating equipment." There are, he said, general minimum requirements that must be met to justify installation of water heating apparatus. These are: Useable heated water quantities, air volumes exhausted from individual paper machines, heat content of exhaust from paper machines, steam costs, and general machine room adaptability features.

The annual dinner at the Adelphia had as the principal speaker Canby Balder-



WHEN GOOD FRIENDS GET TOGETHER . . . It was a day of pleasure for members of TAPPI at their Engineering Conference when they were guests of The Pusey & Jones Corp. on a boat trip down the Delaware. In top picture) foreground (left to right): Ray Wilcox, Philadelphia; D. Butterworth, E. Butterworth Co., Inc., Boston; G. H. Cash, J. O. Ross Engineering, New York; J. R. Dufford, Asst. Gen. Mgr., Paterson Parchment Co., Bristol, Pa.; A. M. Brown; H. Hulmas, U. S. Rubber Co., Philadelphia; R. Effwanger, Chesapeake Corp., West Point, Va.

Below: Engineers watch oysters being opened on shipboard during the trip down the Delaware. Left to right: Joseph Halveck, Worthington Pump, Harrison, N. J.; J. H. McCarthy, St. Regis Paper Co., New York; G. E. Plaisted, General Electric Co., Philadelphia; William McIntosh, Union Bag & Paper Corp., Savannah, Ga., and L. M. Johnson, Soundview Pulp Co., Everett, Wash.



AT ENGINEERS CONFERENCE (left to right): J. B. GOUGH, Chief Engineer of all division of The Mead Corp., with headquarters at Chillicothe, O., who discussed supercalendar rolls; JIM WISE, Kalamazoo Paper Co.; R. H. DOUGHTY, Fitchburg Paper Co., Fitchburg, Mass.; G. E. LAMB, Lamb-Grays Harbor Co., Hoquiam, Wash., makers of an automatic layboy, and EMIL CREUTZ, American Heat Reclaiming Corp.

ston, dean of Wharton School, University of Pennsylvania, who addressed the conference appropriately on "Prophecy and Planning."

### Mill Maintenance and Materials

Tuesday's sessions convened aboard the S. S. Delaware Belle by courtesy of the Pusey & Jones and led off in the big salon with the talks on Mill Maintenance and Materials, chairmanned by George H. Pringle, chief division engineer for Mead Corp., in Chillicothe, Ohio.

A Marathon man, Lee C. Dryden, gave

the first talk, on "Systematic Operation of Construction and Maintenance Departments." He described the control of construction and maintenance departments through the use of a dispatcher and simple forms for work orders, machine and equipment and building-history cards. He told how requests for work to be done by such departments are channeled through the single function of the dispatcher. The dispatcher issues all work orders in this plan, sending them to the crew chiefs or group leaders of the trades and crafts of the construction and main-



tenance departments. Some of the dispatchers are well-trained women. After work is completed the work orders are returned to the dispatcher who records the results and cause on the proper history card, then forwards the work orders to the plant engineer for final processing.

A. I. Sippola, Socony-Vacuum Oil Co., Inc., spoke on the "Dryer Bearing Lubrication," revealing that the approach to the circulation method of lubrication was by use of the ring, chain, and collar-oiled bearing. He stated that newer machines, with improved bearing seals, have made it possible to further increase the rate of oil flow, and thus provide lower temperature of the oil as it leaves the bearing, as well as improved mechanical washing. With increased rates of oil flow, 5000 to 8000 gallon systems are not unusual. He warned that despite improved machine design and greatly improved oils, it is necessary to inspect machine elements, as well as analyze the oil, in order to determine the true condition of the system.

Great attention was given the paper on "Preventive Maintenance" by George W. Charters, assistant resident manager, Crown Zellerbach Corp., Camas, Wash.

#### "The Charters Plan"

This is a program which Mr. Charters put into actual practice at the big Camas mill and part of his work there was establishing an effective and realistic system for maintenance costs, which he evolved several years ago after the then widely known Bedaux system had failed to take these vital costs into account. Mr. Charter's talk at Philadelphia covered the whole program for preventative maintenance.

"Maintenance must be given the same status and rank as production to achieve the objective for which it is created," he said.

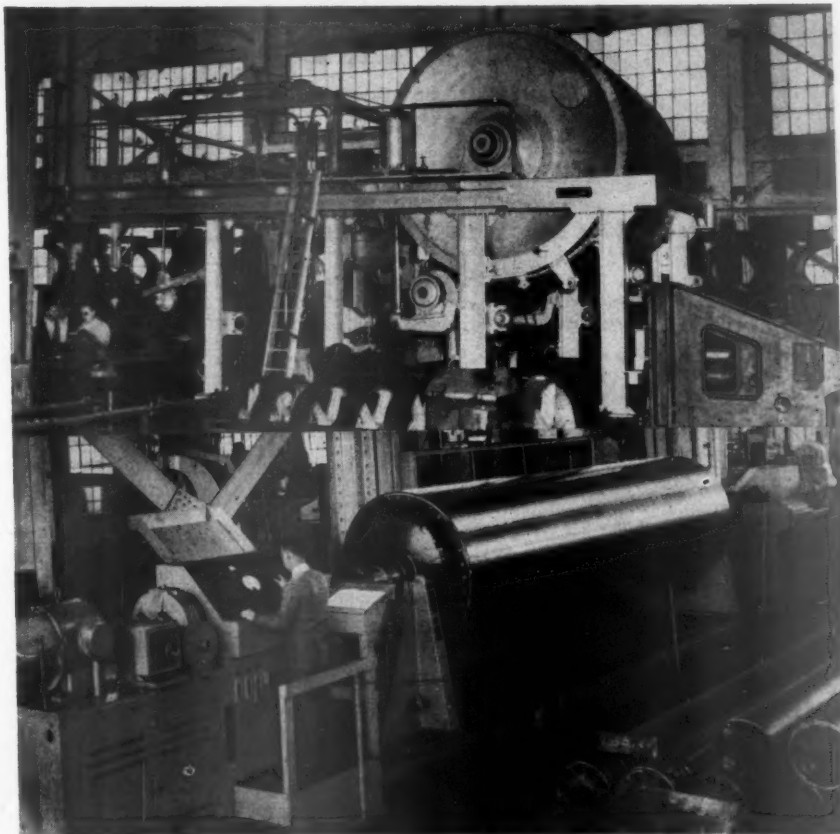
"Preventative maintenance as contrasted to plain 'maintenance' puts the emphasis on 'fixing' before natural wear and tear result in loss of scheduled production time," said Mr. Charters. "Our contention is that preventative maintenance costs less than plain maintenance."

On a normal basis all maintenance work, both mechanical and electrical, should head up under one person, the plant engineer, or, if the plant or engineering work is large enough, to an assistant plant engineer. Under the man heading up all maintenance, there should be a mechanical superintendent, a chief electrical engineer, and the chief power plant engineer, he said.

All maintenance personnel, regardless of where assigned, should be part of the maintenance organization. Where necessary, maintenance personnel should be permanently assigned to specific departments, but should continue to be part of the maintenance organization. To the greatest extent possible maintenance personnel should be pooled and made available wherever needed only for the time they are needed. The necessary first hand acquaintance with equipment and



AT ENGINEERS CONFERENCE (left to right): J. R. DUFFORD, Vice Pres. and Tech. Dir., Paterson Parchment Paper Co., Bristol, Pa.; PAUL HAGGERTY, George LaMonte & Sons, Nutley, N. J.; HENRY A. SCHMITZ, Jr., A. O. Smith Corp.; A. E. MONTGOMERY, Western Mgr., J. O. Ross Engineering Corp., and DR. A. C. HILL, from Gaspesia Sulphite Co. of Canada.



HERE'S WHAT ENGINEERS SAW at The Pusey & Jones Corp. on tour of shops in Wilmington. Top view shows 60-inch dryer cylinder with catwalk around it and facilities for machining, grinding and assembling. The lower view shows how a dryer gear and dryer cylinder is being balanced with the latest type Gisholt dynetric electronic balancing machine. On the tour, engineers saw exhibit of engineering data and material required to build a 236" modern high speed kraft liner machine comprising 161 main assembly drawings, 1510 detail sketches, 1340 tons iron castings, 6½-ton brass castings, 156 tons steel castings, 20 tons steel forgings, 115 tons steel plate, 33½ tons mild steel, ½ ton stainless steel, 1165 lbs. brass plate, 850 lbs. copper, 2 tons aluminum, 3 miles steel pipe, 450 ft. chain, 492 ft. steel rod, 537 ft. V-belts, 43 auxiliary electric motors, 6¼ tons monel metal, 160 lbs. Everdur, 1330 lbs. mica.

specific operation under this pooled maintenance plan can be provided by having one or more permanently assigned millwrights or other maintenance persons in each department.

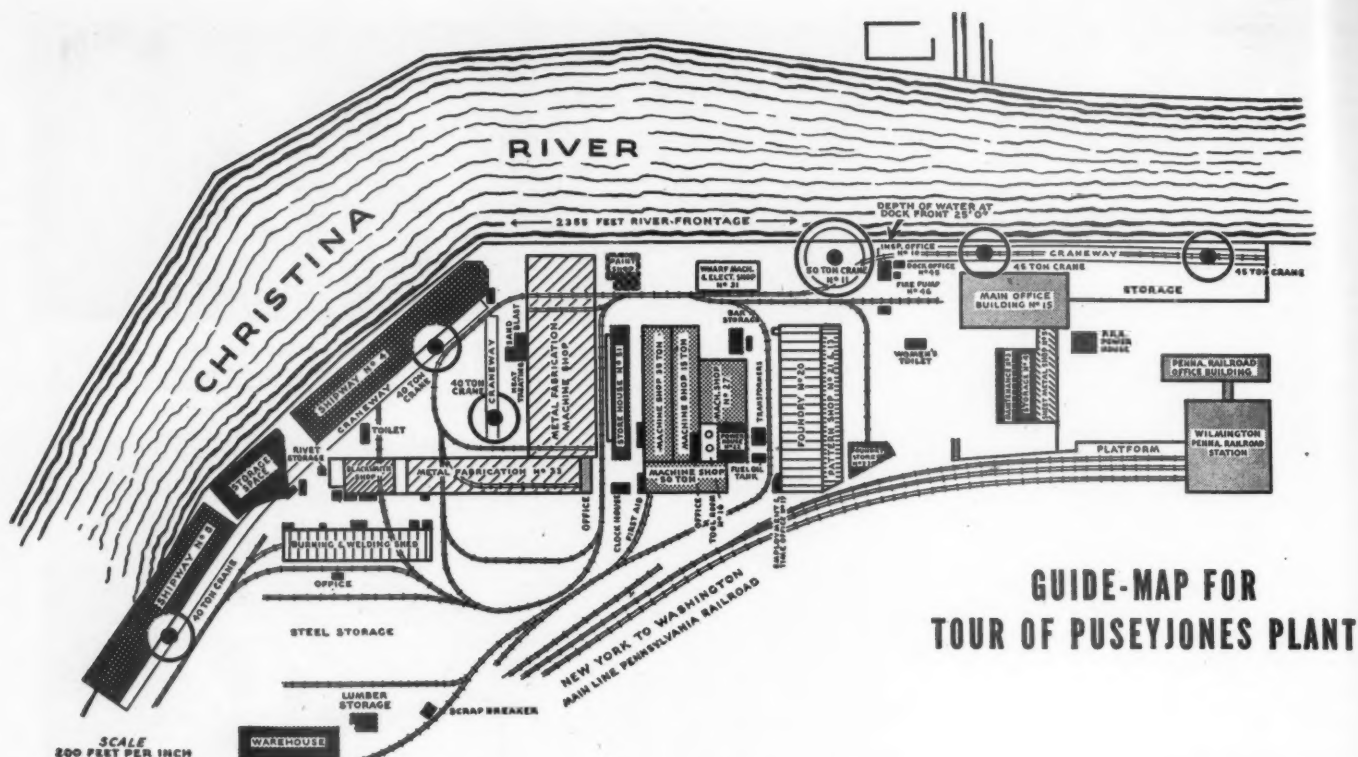
Developing and maintaining the proper organization for maintenance requires written assignment of duties and responsibilities and the reduction to written standard practices for all recurring matters.

Mr. Charters said an essential part of preventive maintenance are mechanical

and electrical inspectors reporting to the mechanical and electrical superintendents.

The aim of maintenance, he explained, is to prevent loss of scheduled production time. In order to tell the man heading up maintenance how well he is doing and to encourage and stimulate the maintenance personnel, some methods of measurement of effectiveness is necessary.

Given an objective, an organization, and a job to do, maintenance must develop certain techniques or patterns. Insofar as these patterns can be routinized, they



THIS IS WHAT TAPPI engineers and their guests saw on tour of Pusey & Jones papermaking machinery shops after cruising down the Delaware from Philly.

should be, and should be reduced to written standard practice.

"There is a need for planned systematic training of maintenance personnel, both salaried and hourly," said Mr. Charters.

Induction and training of maintenance engineers and inspectors, night trade school courses, in-plant training courses for hourly employees as practiced at Camas were described.

"Something that is badly lacking in many plants is an intelligent policy and practice with regard to parts that are removed from service," said Mr. Charters. "Unless planned otherwise, useless spare parts will take up too much valuable space and result in high handling costs. At the Camas mill a definite policy and practice has been set up and a salvage department created to make the policy and practice work."

Effectiveness of maintenance can be increased and the cost decreased by proper maintenance organization, granting of proper status to maintenance, and by the establishment of standard practices, inspection, and training of maintenance personnel, he concluded.

Next on the stage as the *Delaware Belle* steamed proudly toward Wilmington was "Installing and Maintaining Flow Meters" by C. W. Barnard, Bailey Meter Co. He stressed that the value of flow meters can be greatly increased if the installation and maintenance are such that maximum accuracy can be obtained. "Meters for steam, water, gas, air and other fluids all have different requirements, and each should be considered from several standpoints," he said.

#### Tour of Pusey & Jones Plant

Entertainment on board the *Delaware Belle* was lavish, including a popular bar in the forecastle, and a groaning board of oysters and clams as appetizers. Following the final paper of the morning, Pusey & Jones gave a buffet luncheon on the modern ship. At three-thirty the *Delaware Belle* blew for the landing in deep water alongside the Pusey & Jones plant where so many "firsts" in the industry were conceived and built—the first two 226-inch high speed machines for catalogue papers, the first high-speed fourdrinier for newsprint of Southern pine, the first stream-flow vat system for roofing felt, the first postwar fourdrinier machine and others.

Here the guests were met by Pusey & Jones officials who joined those who had already been playing host on the river boat, and the tour began. Visitors saw looming in the yard the modern fireproof building where more than 65,000 separate patterns are arranged and indexed. They saw the big drafting room, the modern foundry which makes one million pounds of castings a month. They were taken through the sheet metal shop, and the metal fabrication division. They saw the careful balancing of the smallest gear and the largest roll, well beyond speeds required in the mill, and the precision machining of the thousands of parts that make up the Pusey Jones machine. Of great interest, too, was the new erection shop where the equipment takes final shape. It was a historic site for the visitors, for at this plant were built some of the most important vessels of the war. But in 1946 the company closed

its shipbuilding division and converted the facilities for the use of the new metal fabricating division, which makes available to the pulp and paper industry the large marine cranes and covered ways which are being used for storage and erection shops.

The company arranged a novel souvenir of the trip on the *Belle* by having a pair of photographers "shoot" almost all the visitors they could catch, and prints were available next day with the name and address of the subject on the envelope.

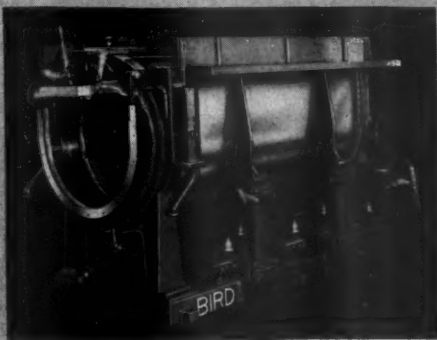
Following the tour, the company was host at a get-together party at the Wilmington Shrine Club, followed by a dinner and entertainment. During the afternoon opportunity was given to TAPPI members to visit the tannery and belt plant of J. E. Rhoades & Sons which will soon celebrate its 250th anniversary. It was a tired yet happy and well instructed group that took the special cars back to Philadelphia along toward midnight.

#### Steam and Power

The final day of the conference began with the Steam and Power session under the chairmanship of John E. A. Warner, of The Robert Gair Co. First paper was "A Short Circuit Analysis of a 40,000 KVA, 2300-Volt Power System" by E. L. Cowan and W. V. Knight of the Gaylord Container Corp. Mr. Cowan delivered the address. He described the A. C. Network Calculator as "a miniature power system in which actual or contemplated electrical networks can be set up in small scale to permit study and analysis of design and operating problems.

Of vital interest to all present was "A





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RELAXING ON SHIPBOARD enroute from Philadelphia to Wilmington on PuseyJones Day at the TAPPI Engineering Conference are (top—left to right): Milton Jacobs, Charles T. Main, Inc., Boston Mass.; W. E. Woods, Mgr., Sitroux, Inc., New York; W. A. McKenzie, Simpson Logging Co., Wood Fiber Division, Shelton, Wash.; G. A. Peterson, Rice-Barton Corp., Worcester, Mass., and Sam L. Foster, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

Below—W. K. Schlotterbeck, Reliance Engineering Co., Philadelphia, helped to point out points of interest on the industrial skyline. Left to right are: Mrs. G. C. Walton, whose husband is with Downington Machine Co., Downington, Pa.; Mrs. Schlotterbeck; Mrs. A. E. McInnes, whose husband is with The Pusey and Jones Corp., Wilmington, and Mr. Schlotterbeck.



HERE ARE SHOWN some of the 478 men and 32 women debarking from the four-deck river steamer Delaware Belle which carried them to Wilmington from Philadelphia. The women were entertained at the P. S. duPont estate and Wilmington Country Club and the men at dinner at the Shrine Club after visiting Pusey & Jones shops.

Fuel Engineering Study of Recent Boiler Installations" by J. E. Tobey, Fairmont Coal Bureau. Mr. Tobey was decidedly bullish on the future use of coal, and not too optimistic about the possibilities of a price reduction or, in some instances, improvement in quality. His paper, illustrated by slides, gave the results of a study of 65 postwar boiler units of all makes purchased in the Northeastern area by the industry, and ranging in capacity from 200,000 down to 6,000 pounds of steam per hour. He stressed the economics of conservative design, and flexibility in steam generating equipment. He urged that management in the industry make a careful study of fuel requirements to determine which coal fields can best meet their long-range plans.

Still along the fuel line, Maynard H. Snodgrass, Detroit Stoker Co., discussed "Modern Bark Burning," gave the results of a study which concluded that a spreader type stoker may offer the best possibilities for burning both bark and coal fuel. A unit started in April, 1946, has operated satisfactory in either bark or coal at more than the design capacity of 85,400 lbs. per hour on bark and 100,000 lbs. per hour on coal. In this installation the baffling of a standard B & W Stirling four-drum boiler was redesigned to secure the maximum flame travel before the combustion gasses enter the boiler. A traveling continuous discharge grate moves forward and discharges the ash in a hopper beneath the floor line. Bark is screened and passes through two-inch openings, going to a bin from which distribution takes place. Main bark and alternate coal fuel are fed from the same bin and fuel spouts, but not simultaneously. Change from bark to coal may be made without losing load or pressure.

In discussing steam generating units it is necessary to classify them as small or large, said W. S. Patterson, Combustion Engineering Co., in his "Factors Involved in the Selection of Stationary Steam Generating Units." He assumed that the dividing line would be 100,000 pounds per hour steaming capacity. Small units, he stated, are generally those which will meet the requirements at the lowest cost. The selection of a large unit, he went on, demands consideration of basic requirements—customer's preference, building limitations, evaluation, maximum capacity, capacity range, steam temperature and steam temperature control range, pressure, fuel temperature, auxiliary or future fuel, nature of feedwater, and desired efficiency.

One of the most erudite discussions of the conference was that by J. H. Gough, chief engineer of all mills for Mead Corp., on "Supercalender Roll Deflections and Crowns." This was so detailed that time did not allow Mr. Gough to take up in entirety all of his notes, but this did not deter the main impact of his well thought out discussion. He confined himself only to the effect of roll deflections and crowns on the requirements and, more particularly, the effect on the uniformity of the surface finish across the entire sheet width, on calender cuts, snap-offs, and broke. He believed that all these are





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DECEMBER, 1947

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AT ENGINEERS CONFERENCE (left to right): GEORGE PRINGLE, Chief Engineer of the Chillicothe Division of The Mead Corp. and chairman of Mill Maintenance session; J. E. EDELMAN, ROBERT K. PRINCE and C. RUMBLE, all of Allis-Chalmers; and R. S. HOYT, Wood Fiber Division, new unit of Simpson Logging Co., Shelton, Wash.



AT ENGINEERS CONFERENCE (left to right): WILLIAM A. MCKENZIE, Director of Engineering, Wood Fiber Division, Simpson Logging Co., Shelton, Wash.; C. H. YOUNG, Chief Engineer, Midwest-Fulton Machine Co., Dayton, O.; JOHN E. WARNER, Chief Engineer, The Robert Gair Co., Inc., New York; C. E. CASS of Marathon Corp., and E. L. COWAN, reading paper on short circuit analysis prepared at Gaylord Container Corp., by Mr. Cowan and W. V. Knight.

largely influenced by the roll deflections and crowns—and their suitability for the particular number, diameter, face and rigidity of all the metal and fiber rolls in the stack.

"Hydraulic Mounting Technique for Roller Bearings" was the title of the paper by A. Stewart Murray, SKF Industries, who described the oil injection method for mounting and dismounting of large roller bearings. In the discussion, it developed that more than one mill had been using the method with success thus far. One engineer in the discussion pointed out that it would seem to mean that mills

would "need to buy less bearings" and the author of the paper humorously agreed and said that the condition was "true and regrettable." The coupling described depends on pressure only and unites two purely cylindrical shaft ends without the use of keys or similar device. Twenty-four couplings for a 7 $\frac{3}{8}$ -inch shafting are now being made for a specific order, Mr. Murray said.

H. G. Koch, Johns-Manville Research Corp., delivered "Engineering Studies in Packings." He told how the life of packing may be extended and maintenance cost reduced, as well as production increased,

by careful installation of packings and intelligent adjustment during the subsequent operation. Basic are two points: Packing must be so disposed as to make a continuous barrier to the passage of the fluid being handled; and the packing unit must press against the mating equipment surfaces with a unit pressure somewhat higher than the pressure of the fluid being sealed. These factors always tend to reduce sealing pressure, plastic flow of the material into voids within itself or into the equipment; loss of material due to wear or abrasion; thermal expansion effects; attack or solution of the packing material by the fluids handled.

Fred W. Atz, Link-Belt Co., presented "The Electrofluid Drive," a revolutionary engineering achievement which is an integral and compact unit combining a standard general purpose motor with a fluid coupling. The fluid coupling consists of two main elements, impeller and runner, and power is transmitted entirely by the mass and velocity of moving oil between the two elements. It is a packaged unit, meeting NEMA motor dimensions, ready for operation. It has been applied to slitters and cutters, Mr. Atz pointed out, and is adaptable to numerous other applications in the pulp and paper industry.

H. C. Merritt was not present at the conference and his "Suction Roll of Today" was read by another official of Downingtown Manufacturing Co. with which Mr. Merritt is connected. It is published in full following this article). The paper pointed out that while the basic design of suction rolls was well known, problems involved in manufacture hindered their development. Increased paper machine speeds made their use even more desirable—result was the direct-driven roll with a non-crosswise shell having a rubber cover with holes properly spaced for maximum water removal, with consequent higher speeds and an increase in wire and felt life.

Following the conference, on Nov. 6, there were special features involving visits to industrial plants, particularly those of machine builders. The Downingtown Manufacturing Co., which had already played host at a Monday night reception preceding the banquet, had transportation available to take members to their plant, and served a luncheon and tour to several hundred TAPPI visitors. Many of these went on from Downingtown, Pa., to The Lukens Steel Co., at Coatesville, where they saw the steel plant and fabricating plant of this organization. Westinghouse in Philadelphia also held open house which featured an illustrated lecture preceding the tour and the demonstration of a 2000 hp gas turbine on test. Link-Belt, Brown Instrument Co., SKF Industries, the Moore & White Co., Samuel M. Langston Co., E. J. Lavino & Co., and The DeLaval Steam Turbine Co., also welcomed guests. No official visits to paper mills in the area were made, but among those who indicated a willingness to see visitors were Dill & Collins, Downingtown Paper Co., Paterson Parchment Paper Co., W. C. Hamilton & Sons, Container Corp. of America, Glassine Paper Co., and no mill in the area declined visitors.



HIGHLIGHTING UNUSUAL USES FOR PAPER . . . When Tappi Engineers sailed from Philadelphia to Wilmington during the Tappi Engineering Conference, three displays of new uses for paper and paperboard products attracted attention. The displays, arranged by Pusey and Jones, included samples of paper products such as wash cloths, bag for vacuum cleaner, bags for garbage disposal, windshield tissue, tape for recording sound, window bags for perishables. These new uses for paper are featured in Pusey-Jones advertising in paper trade publications.

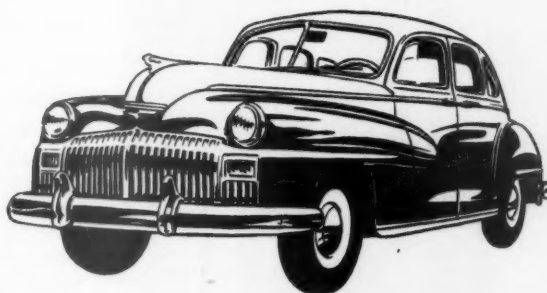




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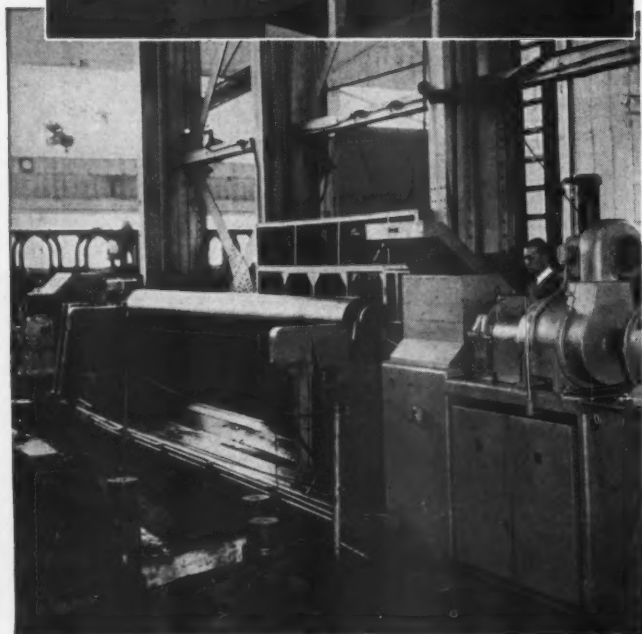
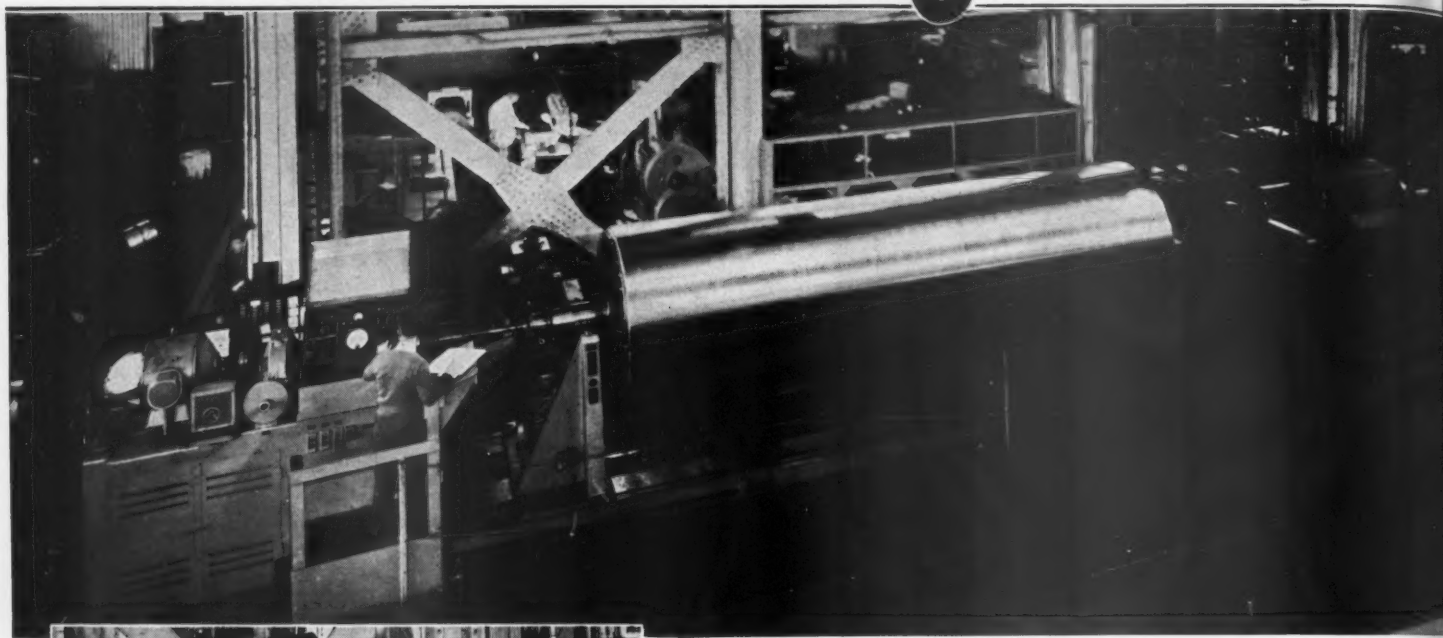
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"The most effective way to encourage the growing of trees is to develop profitable reasons for cutting them down."—(A. G. T. Moore, Southern Pine Assn. executive, in 1938).



On November tour of Middle West mills PULP & PAPER obtained this picture of new American Hoist electric diesel crane very soon after it went into operation at Minnesota & Ontario Paper Co. operations at International Falls, Minn.

#### New American Hoist and Derrick Crane

Tests were made in a Minnesota woodyard a short time ago using an American 40-ton capacity, diesel electric locomotive crane and a 1¼-yard capacity Blaw-Knox grapple. Unloading pulpwood from a flat car and stacking the wood in tiers, the crane production ran up to 80 cords per hour.

New cranes in these larger sizes patented by American Hoist & Derrick Co. of St. Paul, have been put to use by several of the most important Wisconsin, Minnesota, Canadian and Southern pulp and paper companies in the past year.

The Southern mills, it should be pointed out, have a problem that the Northern mills do not. The Southern mills must use the pulpwood within a short time after it is cut because it would deteriorate very fast. Therefore, they cannot build up large stock piles as the Northern mills do.

An economical method as seen in operation in certain Southern mills for the unloading of pulpwood from railroad cars to stock pile, and stock pile back to cars is by the American diesel-electric loco-

motive cranes, using Blaw-Knox pulpwood grapples.

This American Hoist and Derrick design crane is based on a series of recent patents under which electric power is used to travel the crane along the rails while low-cost diesel power operates the turntable and load lifting mechanism. In addition to hook work, the American diesel-electric is used with grab bucket, grapple, magnet, and for swift and efficient car switching. Another patented feature is use of electric power from the traction generator for energizing the magnet, with over-excitation for maximum loading.

Smooth, fluid starting and traveling is achieved through use of electric power on the rails. This is extremely important in locomotive crane operation, because the tremendous strain created by "jerky" starting has always been a major factor in maintenance. The electrified drive, which eliminates 57 major moving and wearing parts, is said to cut maintenance as much as 50% and to make all service work much simpler.

## Fires —

# MAINE TO WISCONSIN

Making mill rounds in September, editors of PULP & PAPER had never seen New England, upper New York, northern Minnesota, Wisconsin and Michigan looking so bright and colorful. The fall foliage of the hardwoods was like a rainbow, the evergreens looked properly healthy. But there were signs that always make a woodlands man nervous. The air was not crisp enough for autumn. There had been no rain for a long, long time.

In October the fires struck several areas almost at once — most spectacularly in Maine and Massachusetts. But New York State, New Hampshire, Vermont, Connecticut, Rhode Island and Wisconsin did not escape. There were eleven deaths in the Northeast states, many injuries directly or indirectly attributed to the fires, and much property damage in resort areas along the coast. The figure of \$35,000,000 total damages in New England was the best that could be obtained by early November, but this was only an estimate. Pulpwood fires in Northern Wisconsin were also serious. At Cloquet, Minn., the men in the varied woods industries of that town remembered with some trepidation when the whole town burned a generation ago.

The woods fires raged for weeks and were only partially contained in most spots until the rains came. In New England, the fight involved thousands of men and hundreds of bulldozers, tractors, trucks, portable fire-fighting equipment. The fires sprung up in so many places at once that sabotage was alleged, but no proof was revealed. The saboteur was probably the weather, possibly aided by careless campers or vacationists. Forest areas were closed to the public.

In an effort to get at the damage to timberlands, PULP & PAPER was informed in early November by the U. S. Forest Service that a round-up of facts would be "an impossible job." The Forest Service reported "no one has the slightest idea as to the approximate loss." State foresters and other agencies naturally had a clearer idea of what had happened, but the full

extent of the damage was still not completely known. In exclusive statements to **PULP & PAPER** the regional officials reported as follows:

Raymond E. Randall, Forest Commissioner, Augusta, Me.—“The definite figures are not yet available, but the best estimate is over 200,000 acres with approximately \$30,000,000 damage.”

A. K. Sloper, Commissioner of Conservation, Boston, Mass.—“Approximately 15,000 acres burned in this state, with a loss of approximately \$450,000, but this is only an estimate.”

Raymond Kienholz, State Forester, Hartford, Conn.—“I would say approximately 1,500 acres were burned in the dry period late in October.”

John H. Foster, State Forester, Concord, New Hampshire—“State estimate is that we had 225 fires totaling 20,000 acres, including 75 buildings and improvements. Dollar loss, at least \$1,000,000.”

Eric G. Jacobson, Chief Forester, Providence, Rhode Island—“We had about 75

fires, burning 600 acres, with damage at about \$2500, and no structures were destroyed.”

Not ready to estimate was Perry H. Merrill, State Forester of Vermont. Equally cautious were the big private owners of timber in the Northeast area. West Virginia Pulp & Paper Co. reported little loss except indirectly through marginal suppliers of wood. Oxford Paper Company, S. D. Warren Company, Great Northern Paper Company, and others were still checking. But it was felt that the estimates of the regional foresters included the best data available.

In Northern Minnesota, where rare temperatures of up to 85 degrees were reported, no serious fire damage occurred. In Wisconsin, however, there were some bad fires. The first week of November—but not until then—brought some rain and heavy overcast days on both sides of Lake Michigan. Not until then did paper mill operators breathe easily.

Stewart H. Holbrook, author of books

on wood industry lore, a history of note on timber fires, “Burning An Empire,” told **PULP & PAPER**, in commenting on the New England fires:

“This has happened before, except it was worse. There was a man named Lafayette visiting in Maine in 1825 whose presence took newspaper precedence over the news about 600 people being burned to death.”

Mr. Holbrook said that the recorded history covering the Maine-New Brunswick-Nova Scotia fire in 1825 presents a striking analogy to conditions and reports on the 1947 fire.

**WOODLANDS DEPARTMENT** of S. D. Warren Co. estimated 150,000 acres of woodlands were burned over in the Northern New England forest fires of October which hit newspaper headlines especially because of the Bar Harbor, Me., destruction. Newspapers of Maine estimated \$30,000,000 loss in all types of properties including summer homes, etc.

## BROOKS-SCANLON UTILIZATION

### One Cord Per Acre Per Year is Goal

Considerable interest is being manifested in the Southern paper and lumber industries as to the probable consumer of pulpwood soon to come from improvement cuttings on the thrifty young stands of Brooks-Scanlon, Inc., around Foley, Fla. An old time lumber producer, this company listened years ago to the cry for reforestation down South so that today it holds potential forest lands for an integrated production.

Starting when it did, the company will have some of everything in its woods. It will stick to the “forest utilization” basis, i.e. fitting its problem to what its forest produces. It's mind is open; and its operations will be based upon developments. Many observers have believed for years that eventually—soon or in the dim future—a pulp mill will rise here as a logical development and in line with the course of events in other regions of the south.

The Brooks and Scanlon families commenced their business association in 1896 in Minneapolis. Founders were Dr. Dwight F. Brooks, Lester H. Brooks, Anson S. Brooks, and M. J. Scanlon. Their first sawmill was in Nickerson, Minn. In 1901, the Brooks-Scanlon Lumber Co., Inc., was formed and a large plant erected at Scanlon, Minn. In 1910, when its operations were transferred to Bend, Ore.

In 1905, at the same time the Brooks-Scanlon interests bought Oregon ponderosa pine they also acquired southern pine forest land and erected a sawmill at Kentwood, La. In 1917, with the Kentwood operation cutting out, controlling interest of the Carpenter-O'Brien Co., having an operation at Eastport, Fla., was purchased. The name was changed to Brooks-Scanlon Corp.

In 1928, the Florida intrastate railroad

M. J. FOLEY, President of Brooks-Scanlon Corp. at Foley, Florida, and recently Vice President of the merged Florida-Oregon operations, will move to Vancouver, B. C., to become an executive of Powell River Co., of which his brother, Harold S., is President. His specific duties have not been determined.



rates on logs having been increased to make hauling to the Eastport mill unfeasible the corporation built a modern two-band mill at Foley, Fla. At one time the company held 900,000 acres of timberland in Florida, including the holdings of the Central Florida Lumber Co., a subsidiary. Effective Sept. 11, 1946, the two companies were combined into Brooks-Scanlon, Inc., with Edward Brooks, St. Paul, Minn., as chairman of the board; Harry K. Brooks, Bend, Ore., president; Paul Keenan, Chicago, executive vice president; A. J. Glassow, vice president in charge of Bend (Ore.) Division; M. J. Foley, vice president in charge of the Foley (Fla.) Division; and, J. M. Hollern, Minneapolis, Minn., treasurer.

#### M. J. Foley Goes to Canada

Effective in the first part of 1948, M. J. Foley will join his brother Harold S. Foley, president of Powell River Co., Ltd., Vancouver, B. C. The Foley Division will then be directed by Owen J. McDonnell, as vice president and general manager, with Conley Brooks as assistant general manager.

Lumber production at Foley Division has been extended by the recent acquisition of cutting rights on about 40,000 acres of timberland in Madison, Taylor and Lafayette counties.

#### Forest Land Holdings

The Brooks-Scanlon Corp., at the close of 1945, held approximately 430,000 acres of forest land, of which it was estimated 20% was non-productive. Of the remaining 344,000 acres, the increment was estimated at 96/100 cords per acre-year of pine and 50/100 cords per acre-year of hardwoods, or an average of 87/100 cords per acre year. Expressed in round figures this increment was placed at 248,000 cords of pine and 32,000 cords of hardwoods per annum.

The aim of the forestry practices of the company is to bring about the production of one cord per acre per year.

To bring about this increment the company has pursued a policy of management and fire protection for over a decade. In July, 1934, it had a total of 37,000 acres of its forest land under protection. Its annual increase of men, equipment and land had brought this total to 285,000 acres in 1946, and on March 30, 1947, 390,000 acres were qualified as “Tree Farm” by the Florida Board of Forestry and Parks. Expansion was halted during the war years due to manpower and equipment shortages, but the company planned rapid extension to full coverage once these handicaps could be overcome.

In its fire control operations, the company works in close cooperation with the Florida Forest and Park Service. On some areas the state furnishes fire detection service—i.e. towers, radio, etc.,



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## JOHNS-MANVILLE *First in* INSULATIONS

DECEMBER, 1947

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and the company suppresses the blaze.

In its pre-suppression work the company puts in fire breaks, telephone lines, and operates eleven trucks of which seven have water tanks and/or barrels, with pumps with suction and discharge hose lines.

Up to 1944 the annual fire loss on protected acreage amounted to no more than around  $\frac{3}{4}$  of one per cent and not over one percent. The 1945 figure was not so good—about 3%. The 1946 figure was 0.872.

In carrying on fire protection and logging operations over a considerable portion of their lands, the company enjoys an advantage from the use of old graded logging train roads with accompanying heavily constructed bridges and culverts. Designed to carry the load of a locomotive, these structures are replaced only by hand-hewn cypress beams and cypress poles so that heavy trucks can carry tractors and fire lane plows to scenes of operation. The poles are sized down to provide smooth passing ruts for truck wheels. As part of the high class maintenance, the water channels at bridges and culverts are kept cleared to permit easy flow.

Logging equipment used by the Foley Division includes nine Caterpillar tractors running up to D-6 and D-7, two International tractors, three Hyster arches, a Caterpillar Speeder-loader, and three other crawler type loaders and a fleet of motor trucks.

#### **Foley Is Pleasant Community**

Foley, a pleasant community with shaded tree lined streets, a large company general store, picture show, and public school, has a population of about 1500. It has long been speculated upon as an ultimately logical site for a pulp mill. It is located but four miles by paved highway from Perry, the Taylor County seat. Perry's population accounts for 5000 of Taylor County's 13,000 persons. Perry has an attractive retail section, good accommodations at the Dixie Taylor Hotel and several new tourist courts. Perry is on U. S. Route 19, the main Florida west coast highway, 56 miles from Tallahassee, Florida's capitol.

In addition to its extensive forestation and fire protection activities, the company is well along its way in the accepted Florida practice of combining cattle and timber. Starting with 210 heads of native cattle in 1943, the company, in late 1947 had 69,000 acres of land under fence and being grazed by 1000 head of cattle with another 1000 head running on unfenced lands.

At first these cattle were allowed to depend entirely upon grazing, but starting in 1944 the company inaugurated a program of winter feeding to carry them through the colder weather without excessive loss of weight.

The company attitude is that cattle raising not only offers a means of carrying on an amplified forestry organization profitably but serves as a bona fide excuse for excluding the "free" land grazers who have never passed the stage of wanting to burn the weeds every year.

## **Eastwood-Nealley CELEBRATES ANNIVERSARY**



Left to right: HARRY G. SPECHT, vice-pres., Eastwood-Nealley Corp., who acted as toastmaster at the triple anniversary dinner in October; Hon. FRED A. HARTLEY, JR., U. S. House of Representatives, one of the two speakers at the dinner; CALVIN H. NEALLEY, president of the company; DR. ARTHUR A. HAUCK, president of the University of Maine, the other principal speaker.

There are very few companies in the young U. S. that can boast of one hundred years in business. Therefore on Oct. 16 the Eastwood-Nealley Corp., Belleville, N. J., had plenty of reason on that score alone to celebrate with a banquet at the Waldorf Astoria in New York—and to welcome several hundred of its friends in the pulp and paper industry.

But in reality it was a triple anniversary. Not only was Eastwood-Nealley commemorating a century in business, but also the 50th year of association with the paper industry of Calvin H. Nealley, president of the company, and the 70th year of the Eastwood organization's service to that industry. Note was also taken of the 45th year of association with the company of Ralph E. Lum, Sr., all except five of them as a director.

Toastmaster at the notable occasion was Harry G. Specht, vice president of the company, who carried this difficult role with genuine finesse, and not the least of his effect was due to his sincere and stated desire that the anniversary banquet be something more than a company celebration—that it give the participants a lift and a message. Toward that end he introduced as speakers Dr. Arthur A. Hauck, president of the University of Maine; and the Hon. Fred A. Hartley, Jr., of the U. S. House of Representatives and one of the authors of the Taft-Hartley Act.

The appearance of Dr. Hauck had special interest because the University of Maine was a pioneer in education for the pulp and paper field, and also because Maine claims Mr. Nealley as an alumnus. After paying homage to Mr. Nealley as a true son of Maine, and as an important factor in American business and the pulp and paper industry in particular, Dr. Hauck went on to sound a real note of optimism. After pointing out that paper made possible the preservation of the pledge of free men which grew out of the late war, and he described the attitudes of veteran-students at Maine as proof that the attitude of youth, even of youth

scarred by the war years, was one of faith in the U. S. and its ideals.

At the conclusion of Dr. Hauck's talk, Toastmaster Specht reiterated this theme by saying that, in his opinion, the U. S. had hardly begun to hit its stride economically, industrially, and socially. He then introduced Congressman Hartley who described the work behind the authoring of the Taft-Hartley bill. "No piece of legislation has been so vilified and misrepresented," he said. But, he pointed out, the legislation is becoming increasingly popular with the rank and file of labor as they become familiar with its real content and purpose.

"All we tried to do," said Congressman Hartley, "is write equity into labor law."

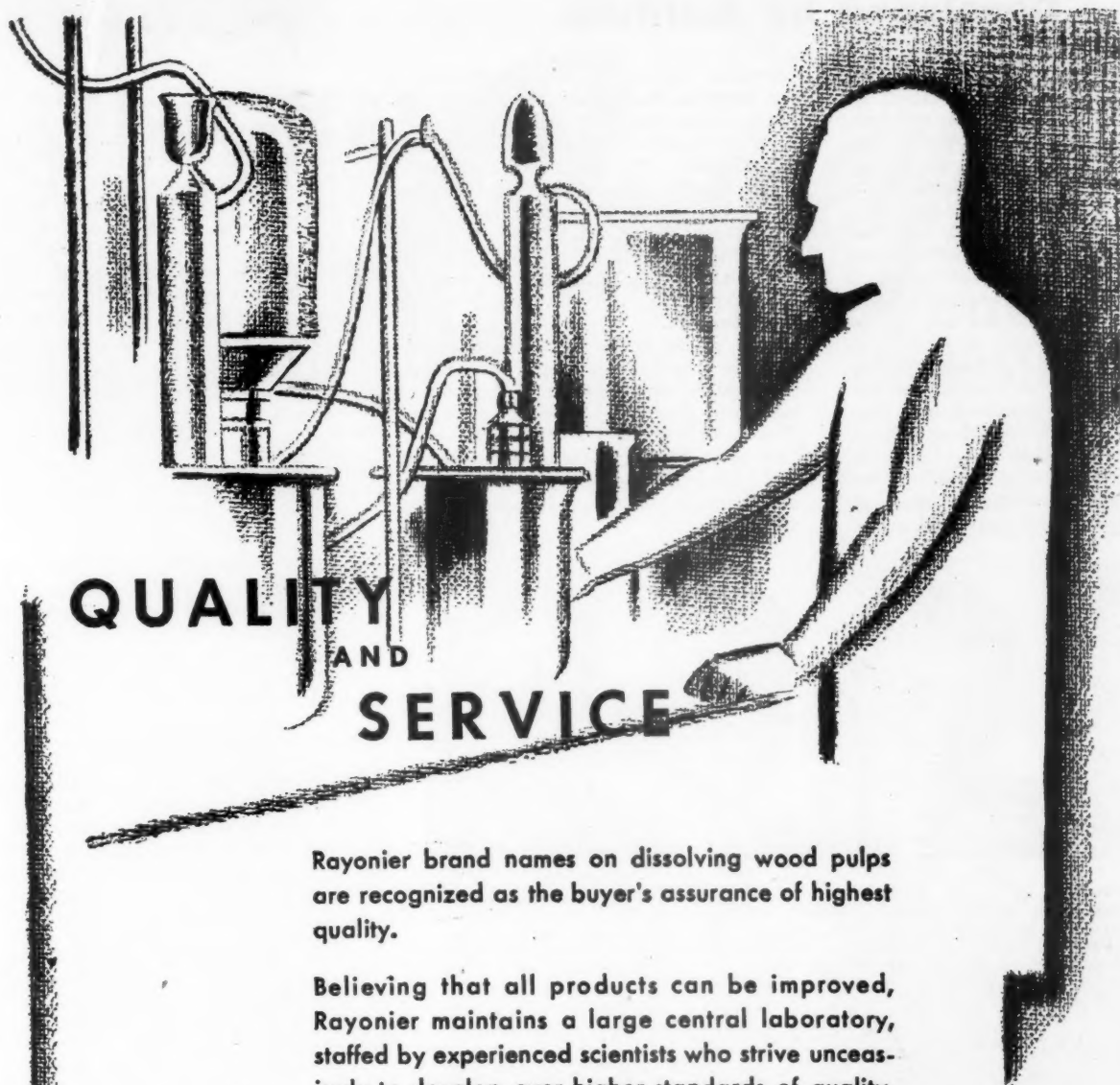
He outlined the results already accomplished for both labor and management, and stressed the fact that local law enforcement would be called to accounting by Congress for failures to correct abuses of the law in connection with disputes.

Mr. Specht brought the theme home by outlining how Eastwood-Nealley was informing its own employees of the true aims and methods of the bill, and he urged the paper men to take like action in their mills.

The guests joining the Eastwood organization represented a cross-section of the pulp and paper industry and allied activities. Governor Driscoll of New Jersey sent his congratulations to Mr. Nealley who became associated with the industry half a century ago when he joined the Otis Falls Pulp Co., Portland, Me. When the International Paper Co. was organized in 1898 he came to New York as assistant manager of the purchasing department. In 1908 he joined Eastwood.

Toastmaster Specht told the assembly that he had always been struck by the answer of an old philosopher in response to the question as to what had been the most satisfactory moment in his life. The answer was: "A boy went down the road singing, after having asked me the way." The story was definitely illustrative of the mood of Eastwood guests.





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## "ASTOUNDING" NEW INSTRUMENTS Developed by Institute

For the first time since its organization, the Fourdrinier Kraft Board Institute summoned its operations and technical staffs to a meeting in Appleton, Wis., Oct. 23-24. Top officers of the nine Southern member mills had previously met.

Importance of this meeting was demonstrations of more simplified, more accurate and faster tests of the effectiveness of boxes and their component parts in protecting shipments. It was predicted that some new instruments, not yet on the market, will be produced as a result of this meeting. Patents on some of them are to be held by the F.K.B. Institute.

M. C. McDonald, president and general manager of the Chesapeake Corp. of Virginia, is the chairman of the Institute. John Strange, secretary of the Institute of Paper Chemistry, presided at technical sessions which were held at the

Institute. About 35 attended, 28 coming to Appleton on a special car from Chicago, where they had gathered.

West Virginia Pulp & Paper Co., Charleston, S. C.; Southern Kraft mills of Georgetown, Spring Hill and Panama City; Union Bag & Paper Corp., Savannah; Chesapeake Corp. at West Point, and Hummel-Ross at Hopewell, Va.; National Container at Jacksonville, Fla.; and St. Joe Paper Co., Port St. Joe, Fla., are the members.

One official commented "It's astounding how they have developed instruments to evaluate component parts of a box, of combined board and of finished boxes." Testing of combined board at the score line is regarded as the most important test. A modified G.E. puncture tester and hammer tester are applied at the score line.



PERSONNEL CHANGES in BFD Division, Diamond Match Co. Left to right: SVERRE H. GRIMNES, formerly with Munising Paper Co., is now Chief Engineer, Plattsburg and Ogdensburg, N. Y., plants; ELWOOD C. KEYSER has assumed the position of Paper Mill Supt., Plattsburg plant, succeeding the late Otto Wilke; CHARLES N. HAGAR, Jr., became Technical Director, Plattsburg and Ogdensburg plants, and LEO N. POCCIA is Chief Chemist, Ogdensburg, succeeding Mr. Hager. Mr. Hager succeeded Dr. R. E. Baker, new manager of Longview pulp mills of Weyerhaeuser Timber Co.



### NORTHEAST

#### Fairburn Elected President

Robert G. Fairburn has been elected president of The Diamond Match Company to succeed his father, the late William A. Fairburn. Mr. Fairburn is also president of the B-F-D Division of Diamond Match. H. F. Holman, treasurer, has been named chairman, and Henry G. Lucas, vice president.

HENRY LEHMUTH 3rd, for six years chief industrial engineer for Philadelphia Division of Bendix Aviation Corp., has been named plant engineer for The Moore & White Co., papermaking machinery manufacturers, according to George Lear, president.

FOR WEST VIRGINIA Pulp and Paper Co., George N. Hoover, Jr. and Ray A. Stocker have been named assistant managers of the Mechanicville, N. Y., plant; Melvin L. McCreary has been advanced to assistant manager of the Williamsburg, Pa., plant, and J. Lynne Ferner has been promoted to general superintendent of the Tyrone, Pa., plant.

FRANK W. SMITH, vice president of Bulkley, Dunton Paper Co., S.A., sailed on the Queen Elizabeth Oct. 17, and will make an extended trip in the Scandinavian countries and Western Europe. Mr. Smith's itinerary includes visits to Sweden, Norway, Finland, the Netherlands, Belgium, France and England. The primary purpose of his trip is to gain first-hand knowledge of the present condition and future outlook of the European pulp and paper industry and its relation to the world market. Mr. Smith will call on the organization's European representatives which are part of the world-wide network of Bulkley, Dunton's 59 offices and field representatives in the United States, Europe, Latin America, the Near East and Asia.



### SOUTH

CARLEY L. CRAIN, manager of Southern Kraft Division of International Paper Co. at Georgetown, S. C., and coordinator of the eight Southern Kraft mills in the South, predicts peak employment and production for the Georgetown mill in 1948 and said its share of wood procurement expenditures by the division would be \$10,620,573—27% of the total.

HARRY J. KRUSE, 53 years old, general superintendent of Albemarle Paper Mfg. Co., Richmond, Va., died suddenly Oct. 18 at the mill. He was prominent in superintendents' association activities. He is survived by his widow, a son, Corporal Richard Harry of the U. S. Army, and a brother, Fred, production manager of the Chesapeake Corp., West Point, Va.

OWEN J. McDONNELL has become vice president and general manager of the Foley, Fla. division of Brooks-Scanlon Corp., with Conley Brooks as assistant general manager. This company does extensive pulpwood thinnings of its forest holdings. Mr. McDonnell succeeds M. J. Foley who has joined the executive staff of Powell River Co. in western Canada.

W. W. HENDERSON & SONS, of Pensacola, Fla., who represent several manufacturers in the South, have added a line of Erkote Technical Mastics, manufactured by Earl Paint Corp., of Utica 3, N. Y., which are insulating and corrosion resisting materials.

W. C. McDONALD, of Southern Advance Bag & Paper Co., Hodge, La., was named a member of the first governing committee of the Louisiana Forestry Association. The organization was formed at a meeting in Alexandria, La., in which more than 100 forest land owners participated. P. A. Bloomer, president and general manager of Louisiana Longleaf Lumber Co., Fisher, La., was named chairman.

WILLIAM R. PUMPHREY, 66, president and founder of Amarillo Paper Co., Amarillo, Tex., died Oct. 6. His widow, secretary of the company, and a son, survive.

MAYER MYERS, president of the Mayer Myers Paper Co., Memphis, Tenn., was elected president of Southern Paper Association at its annual meeting in Galveston, Texas. The association membership includes wholesale dealers in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee and Texas.

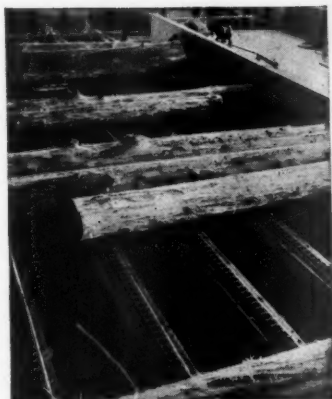
H. T. SCORDAS, who served for 5 years in the army—a long tour of duty—including anti-aircraft service in Europe, has been selected to be in charge of the technical department of the new box factory of Union Bag & Paper Corp., Savannah, Ga. He will be responsible to Dr. M. L. Taylor, technical director for the entire Savannah operations.



# LINK-BELT *Conveyors*

**HOLD DOWN  
HANDLING  
COSTS!**

**IN THE  
LINK-BELT LINE THERE'S  
A TYPE OF CONVEYOR,  
CHAIN AND DRIVE SUITED  
TO EVERY REQUIREMENT**



Barked logs leaving hydraulic barker on 5 strands of Link-Belt H-124 malleable iron conveyor chain.



Link-Belt rubber-covered belt conveyor handling wet pulp from thickener to bleach chests.

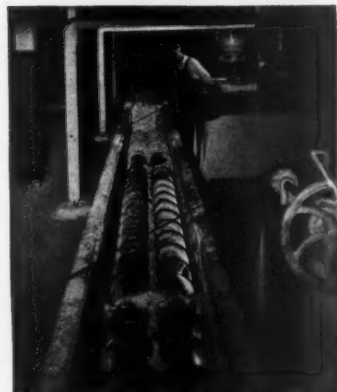


Pulpwood conveyor employing three strands of Link-Belt No. 4124 Promal pintle chain with "RR" type pusher attachments.

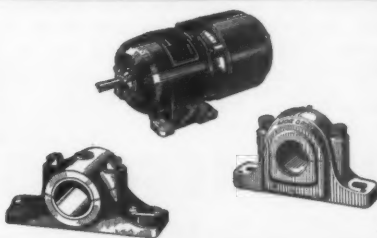
Pulp and paper production involves much handling of logs, pulp and other materials between different stages in processing. For the correct types of conveyors and associated drives, let Link-Belt advise and supply you, from the most complete line of conveying and power transmission machinery.

## **LINK-BELT COMPANY PACIFIC DIVISION**

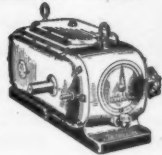
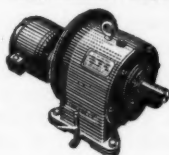
Plants at San Francisco 24, Los Angeles 33, Seattle 4.  
Offices and Warehouses: Portland 9, Spokane 8, Oakland 7.



Link-Belt screw conveyor installation employing twin screws handling 16% consistency pulp from filter to bleach chest.



Link-Belt power transmission machinery for the paper and pulp mill includes silent and roller chain drives, speed reducers, speed variators, the Electrofluid drive, ball, roller and babitted bearings, clutches, couplings, etc. Send for catalogs.



# **LINK-BELT CONVEYORS**

PREPARATION EQUIPMENT . . . POWER TRANSMISSION MACHINERY

# West Coast Cedar and Fir EXCELLENT FOR FIBER BOARDS

West coast woods, especially western cedar and Douglas fir, give excellent results—both for strength and low water absorption—as compared with other raw materials tested for the suitability as basis of rigid fiber building boards according to Mr. Arne Asplund, vice president of A. B. Defibrator, Stockholm, Sweden, and one of the owners of the company.

Mr. Asplund is visiting in the United States, and made this statement to **PULP & PAPER** in the offices of the American Defibrator Co., New York City.

"The tests on these woods were carried out in the wallboard laboratory of A. B. Defibrator, Stockholm, Sweden, and of the many hundreds of runs we have made on a wide variety of raw materials, we have very seldom, if ever, obtained as good results with any other raw material. According to our experience, based on a great number of cases where laboratory experiments have been converted into industrial practice, we are certain that same results can be obtained in commercial operations.

The board made from west coast logging waste shipped to Sweden for tests, showed test figures well above even those minimum specified by the standard Federal Specification for fiber board.

Mr. Asplund arrived from Sweden by plane a few days after receiving one of the highest engineering awards possible in his country—a gold medal from the Swedish Sciences (Svenska Ingeniorsvetenskapssakademien) for his original invention of the Asplund defibrating method for continuous separation of lignocellulose fibers at high temperatures. Mr. Asplund started to work on his Defibrator process in 1931, and his first industrial machine was in operation in 1934.

Mr. Asplund graduated from the University of Wisconsin in 1927. Before returning to Sweden in 1928, Mr. Asplund spent periods at various U. S. pulp and paper mills familiarizing himself with the American pulping practices. Upon his return to Sweden, and after specializing



ARNE ASPLUND, a Swedish engineer who invented the Asplund Defibrator some seven years ago, is here photographed by **PULP & PAPER** during an exclusive interview with this magazine in New York City. His invention has been one of the important factors in the closer wood utilization "revolution" which has been going on in the forest products industries of North America these past few years.

as a cellulose chemist, he transferred his interest to wallboard and fiberboard and took part in the erection of the first wallboard mill in Sweden.

With only 1/20th of the population of the United States, Sweden consumes about 150,000 tons of wallboard a year. The ratio of wallboard to insulating board is 2.5 to 1 which is exactly the reverse of the ratio in the U. S. Mr. Asplund points out that with the same consumption per capita this country would consume about 3,000,000 tons annually, making the wallboard industry approximately twice its present size. He states that there are about 450 defibrators now operating in the world, with a combined capacity in the neighborhood of 2,000,000 tons annually.

Mr. Asplund arrived in New York on October 28th and is spending about a month visiting mill areas in the East, South, Midwest and Pacific Coast.

how the university was endeavoring to assist the pulp and paper and other basic west coast industries.

Mr. Hatch's paper led to lengthy interrogation, with special reference to the Weyerhaeuser Timber Co.'s new Longview mill, whose construction will be completed before the end of this year.

In relation to the Longview project, Mr. Hatch stated that by designing boilers capable of operating at 600 pounds pressure or over, it was possible to extract sufficient power for operating the mill. Because of the high solubility of magnesium salts it was possible to use a steam pressure of 150 pounds in the digester heat exchangers, since there would be a minimum of scaling trouble. With higher steam pressures, less heat exchanger surface was required and better efficiency might be obtained. The evaporation and drying, which were the main consumers of steam, would be operated at about 30 pounds pressure.

"In the operation of a cyclic system such as this, we have to take into consideration the mineral constituents dissolved from the wood," said Mr. Hatch. "Our western woods contain appreciable amounts of calcium, potassium and manganese. Experience in the operation of our pilot plant has demonstrated that the PH of the acid from the absorption towers in the recovery system can be maintained high enough to present the solution of most of the calcium and manganese compounds which can be removed by suitable filtering equipment before returning the acid to the digesters.

"A certain amount of the potassium salts will pass through the system as a fume and the potassium content of the recovered acid will eventually build up to an equilibrium point. If, however, potassium salts increase to too great an extent they will influence the crystalline condition of the recovered ash, making it less reactive. Under such conditions the potassium salts may be extracted from the ash slurry by vacuum filters."

Mr. Dekking described the power plant modernization program at Woodfibre mill of B. C. Pulp and Paper Co., made necessary by the advent of hydraulic barking and whole log chipping.

"We have come a long way from the time, in 1912, when the only way to eke out available steam was to run the drying machine in the daytime, and cook the digesters at night," said Mr. Dekking.

Mr. Ostrowski told about the Ocean Falls recovery system for chemical and groundwood screenings. He said the refined chemical screenings are separated from the No. 1 grades of pulp and papers, defibered, collected in a sliver pit and subsequently used in the manufacture of the coarser grades of paper. Groundwood screenings are defibered by a Bauer refiner and are returned to the groundwood system.

## CANADIAN GROUP MEETING

Use of magnesium as a base for the recovery of chemicals and energy in the sulfite process, recovery of chemical and groundwood screenings and power plant modernization were among the subjects discussed at length at the recent meeting in Vancouver, B. C., of the Pacific coast branch, Canadian Pulp and Paper Assn.

The day's business sessions, held in Hotel Vancouver, were presided over by John Ashby, chairman of the section, who is mill manager of Westminster Paper Co. About 70 attended, with all British Columbia mills being represented.

The principal papers were presented by R. S. Hatch, director of research, Weyerhaeuser Timber Co.; Henry J. Ostrowski, technical advisor, Pacific Mills, Ltd., and B. Dekking, of British Columbia Pulp & Paper Co. A discussion of groundwood problems was led by Harry Andrews, technical director of Powell River Co.

At the banquet which concluded the meeting the guest speaker was Dr. Norman Mackenzie, president of the University of British Columbia, who was introduced by Harold S. Foley, president of Powell River Co. Dr. Mackenzie told



IN THE INDUSTRY NEWS LAST MONTH (left to right):

**LOUIS MEYER**, 63-year-old Paper Mill Supt., Port Edwards, Wis., mill of Nekoosa-Edwards Paper Co., who recently completed 50 years of papermaking and who has two brothers and two sons in Wisconsin mills (one son, George, runs a machine for his father and has 28 years' service behind him).

**FRANK FRAMPTON**, General Supt. at Fox River Paper Corp. for the past three years, who celebrated the same birthday—Nov. 2—as his brother, Charles, a retired Supt. now living at Pomona, Calif. Both were born in Hamilton, O., but Charles is the elder by five years.

**RICHARD S. BUCKLEY**, who announced his resignation as of Nov. 12 as Superintendent of Fernstrom Paper Mills, Pomona, Calif. Born in Everett, Wash., a graduate of University of Washington, he has long been a leader in Papermakers and Associates of Southern California. His future plans are undecided.

**H. T. SCORDAS**, who will be in charge of Technical Dept. in new box factory at Union Bag & Paper Corp., Savannah, Ga., serving under Dr. M. L. Taylor, Tech. Director for all operations there. Mr. Scordas served five years in military forces, including anti-aircraft service in Europe.

## 50 Years of Papermaking

Fifty years of paper-making are back of Louis Meyer, 63-year-old paper mill superintendent of the Port Edwards, Wis., mill of Nekoosa-Edwards Paper Co., and he is still going strong.

The Meyer family has also made quite a name for itself in the industry with five of them in key operations positions.

His brother, Ed, is general manager at Badger Paper Mills, Peshtigo, Wis., and another brother, Rudy, is superintendent for the same company.

Louis' oldest son, George, isn't doing badly himself with 28 years' service in mills behind him and he runs a paper machine under his father at Port Edwards. Another son, Everett, is at Flambeau Paper Co., in Northern Wisconsin.

Louis Meyer's career began when he was just 13, and most of it was spent in Wisconsin, although he had one year on

the Pacific Coast. He is slim, wiry and tall, and his hair is still blond and he didn't look like he was anywhere near 63 when visited by **PULP & PAPER** a few weeks ago. He had kept the Port Edwards machines going during a recent trick construction job when a new modern roof was built over the mill without losing any production.

Mr. Meyer said that he got his start 50 years ago with the former C. W. Howard mill at Menasha, Wis. Since 1903 he was with Nekoosa-Edwards except for brief periods gaining experience away from the Wisconsin Valley. In 1933 he worked for Oregon Pulp & Paper Co. at Salem, Ore. He was tour supervisor at Port Edwards for most of the period from 1926-1941 and since that year has been paper mill superintendent.

**ROBIN A. CAMPBELL**, graduate of Syracuse U. and naval corps supply officer in South Pacific during war, has joined Minnesota & Ontario Paper Co., as Production Assistant to Vice President and General Manager R. W. Andrews. Mr. Campbell is stationed in the Baker Arcade headquarters of the company in Minneapolis. For ten years he was on the staff of Blandin Paper Co.



**ORRIS SCHMALZ**, who is in charge of the printing at Thilmany Pulp & Paper Co., and his wife, recently celebrated their 10th anniversary, going to Eagle's convention in Chicago. He is a younger brother of Art Schmalz, assistant general superintendent, and one of four brothers at the mill.

**R. P. ABERCROMBIE**, vice president in charge of sales, Cheney-Bigelow Wire Works, who regularly travels in the South for his firm, took a special trip into the Middle West area during early November.

**HUNTING EXPEDITIONS**, some of them getting to be regular fall fixtures in the paper industry, were the prime events of interest in many localities during the past month. Two different six-day trips on special cars, hooked up to Soo Line freights, took groups of Wisconsin and Michigan paper industry executives to North Dakota. Then there was the party that invaded the Northern Michigan woods as guests of Fletcher Paper Co., Alpena, Mich. Up near Potsdam, N. Y., Racquette River Paper Co. was holding its annual deer-stalking safari.

**MARGARET DE JONGE**, bookkeeper at Bergstrom Paper Mills in Neenah, Wis., and her sister, Dorothy de Jonge, assistant purchasing agent at Thilmany Pulp & Paper Co., in Kankauna, live just about midway between those points, in Appleton. Again this year, they made a vacation trip together in the car they jointly own, to Chicago and other nearby points.

**DR. TRUMAN PASCOE**, technical director of Nekoosa-Edwards Paper Co., combined a trip to Kalamazoo to speak before the TAPPI section there last month, with a visit to his family home at Coldwater, Mich. Members of the Pascoe family from Minneapolis picked up Dr. Pascoe at Port Edwards, Wis., and drove him to Michigan and back home.

**NORMAN SCOTT**, sales manager of Orr Felt & Blanket Co., and Mrs. Scott had as guests in their Piqua, Ohio, home on an early November weekend the Glen Suttons of Kalamazoo. Mr. Sutton is superintendent at Sutherland Paper Co.

**MILTON R. BAILEY**, vice president of Bulkley, Dunton Pulp Co., and Mrs. Bailey are in Tuscon, Arizona, for a vacation and to visit their daughter, Sherry, who has entered the University of Arizona as a freshman.

**TEX COLLINS**, who is laboratory supervisor for the upper mill at Thilmany Pulp & Paper Co., and Mrs. Collins, have a baby daughter only four months old this month.

**SHREVE M. ARCHER**, president of Archer-Daniels-Midland Co., one of the largest processors of grains and vegetable oils, died in St. Paul, Nov. 10. He was also a trustee of Minnesota & Ontario Paper Co.

**B. M. THOMAS** was elected vice president in charge of production of The Ohio Boxboard Co., Rittman, Ohio, on Oct. 28. For six years, up to 1946, Mr. Thomas was vice president and plant manager of American Coating Mills at Elkhart, Ind.

**FRANK FRAMPTON**, general superintendent at Fox River Paper Corp., Appleton, Wis., for the past three years, celebrated the same birthday on November 2 as his brother, Charles, retired superintendent living at Pomona, Calif. Both were born in Hamilton, O., and Frank is five years younger than Charles. They were not able to get together this birthday.



### MIDDLE WEST

**GEORGE W. MEAD**, president, and **STANTON MEAD**, vice president and director of manufacturing of the Consolidated Water Power & Paper Corp., mills, traveled together to New Haven, Conn., to see the Yale-Wisconsin game.

**ALLAN MILHAM**, former president of Bryant Paper Co., now a St. Regis division, was elected a city commissioner of Kalamazoo on Nov. 4. His family has been one of the most prominent in the Kalamazoo paper industry for several generations.



# NEW SAFETY PROGRAM

## Makes Good in First Year

Second annual series of Pacific Coast joint labor and management safety conferences—the first of their kind ever held by any major industry anywhere in the world—was begun with a two-day meeting, Nov. 6-7, at Los Angeles. Later gatherings were scheduled for Salem, Ore., and Olympia, Wash.

Re-elected co-chairmen, Otto R. Hartwig, Crown Zellerbach Corp., and John R. Sherman, vice president, International Brotherhood of Pulp, Sulphite and Paper Mill Workers, greeted 54 management and union delegates and guests at the Mayfair hotel.

The initial 1947 conference was considered an outstanding success for several reasons: The delegates have become imbued with the importance and seriousness of the meetings, and the industry has had a year to build up a case history of accomplishments sparked by last year's discussions. These graphically illustrated what can be done when both management and labor work in unison to achieve a definite purpose.

Lester Remmers, Crown Willamette manager at Los Angeles, gave the opening address for management.

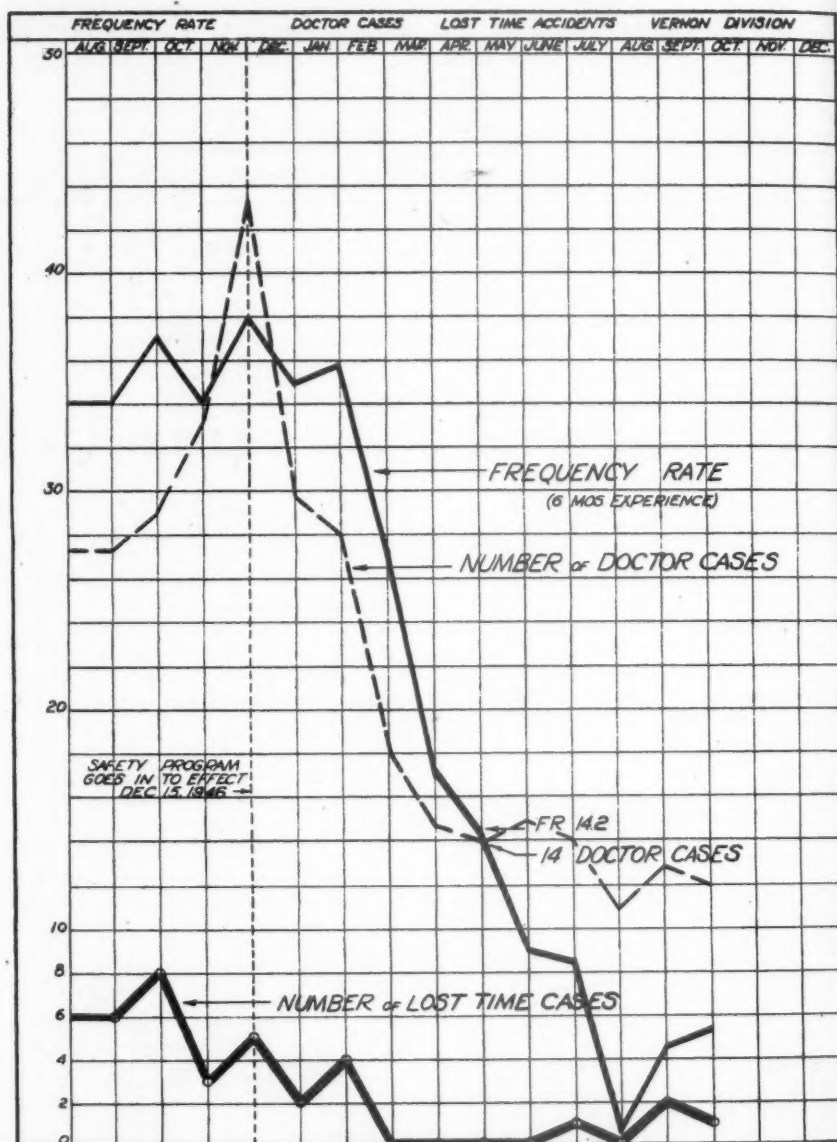
Progress in safety developing machinery over the years, he said, has been twofold. First, research has vastly improved the physical equipment and the mechanical apparatus which industry employs, wheels and other pieces of equipment are from 100 to 500% stronger than it used to be. This, in spite of the most strenuous use to which they are put these days. The second great stride which has been made in respect to the machinery as an accident hazard is the one of putting safeguards on equipment, which is apt to be affected by some unusual use to which it may be put, or which may be responsible for an accident.

"Virtually every dollar expended because of an accident represents a form of waste which we must not continue to tolerate," said Mr. Remmers. "Industry is compelled to spend additional money beyond the wages of a temporary worker taking the place of a man who is injured, because a new worker is rarely ever able to carry on as efficiently as the worker who was injured.

"The so-called hidden costs of accidents are usually four times as great as the visible costs.

"If so-called visible workmen's compensation costs a firm \$20,000.00 a year, as a general rule the losses of such a firm will amount to \$100,000.00 a year when both the hidden as well as the visible costs are added up."

Mr. Sherman replied for labor, stress-



THIS CHART DRAMATICALLY illustrates how the first labor-management industry wide joint safety conferences ever held in this country have paid off in just one year—as far as the Vernon, Calif., Division of Fibreboard Products Inc., is concerned. And, no doubt, similar improvements have been shown in some other Coast mills since the first conferences of this type were held last year and reported exclusively in PULP & PAPER.

ing that, while progress had undoubtedly been made, more strengthening needs to be done. There is more belief in safety than ever before, he said. The mills, generally speaking, have received the safety program enthusiastically. He urged that safety be regarded, not from the standpoint that it contributes to greater production and thus more profits, but as a human program to save lives and suffering.

Initial discussion subject was "Safety and Good Housekeeping," led by Robert Buckley, Fernstrom Paper Mills, and Dick Burnette, Container Corp. of America. Mr. Buckley, in his opening, declared that housekeeping in a mill should be continuous and systematic, from janitor to top management. Mr. Burnette said that of all accidents occurring in paper mills, 60% are due to poor housekeeping.

Overall progress and accomplishments



## THAT GRAND AND GLORIOUS FEELING

**Management**—When you install Orr-Chem felts, the *chemically-treated kind*, and discover a little later that they stayed on longer, did a better job of draining, and required fewer wash-ups, it's only natural that you should get "that grand and glorious feeling." To reduce felt cost per ton produced is always a welcome experience.

**Mill Personnel**—When, in mills operating on a production incentive

plan, it dawns on the men that Orr-Chem felts effect such economies and that their pay envelopes will reflect the saving, they, too, are more than pleased.

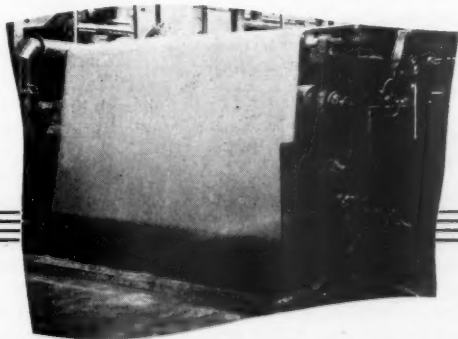
**Stockholders**—Although probably not in touch with operating developments, stockholders certainly do appreciate a good statement, another place savings on felting and upped production will show up.

The past year many mill case

histories have been published. Many more are available and with practically every type of mill and practically every grade represented. They make an interesting study of the entire Orr-Chem development.

If you are not already an Orr-Chem enthusiast, it will pay you well to give these chemically-treated felts a trial.

**THE ORR FELT & BLANKET CO.**  
PIQUA, OHIO



## ORR·CHEM

Pacific Coast Representative: **LEONARD McMASTER**, Pacific Bldg., **PORTLAND, OREGON**

DECEMBER, 1947

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**CHAIRMAN, SPEAKERS AND DISCUSSION LEADERS** at the unusual Safety Conference in Los Angeles, another in series of first conferences of this type ever held by any industry. Seated (left to right)—Lester E. Remmer, Crown Willamette Co., Los Angeles, speaker for Pacific Coast Association of Pulp & Paper Manufacturers; Harvey Brown, Fibreboard Products, Inc., Los Angeles; William D. Welsh, Crown Zellerbach Co. (Toastmaster at dinner); John Sherman, Vice President, I.B.P.S. and P.M.W., Tacoma, Wash., Co-Chairman; Rosalie Steele, Secretary, I.B.P.S. and P.M.W., Los Angeles; Otto R. Hartwig, Safety Director, Crown Zellerbach Corp., Co-Chairman; S. W. Grimes, Secretary, P.C.A.P.P.M., Portland; Ivor Isaacson, Vice

President, I.B.P.S. and P.M.W., Los Angeles; R. T. Drummond, Vice President, I.B.P.M., Portland, Ore.

Standing (left to right)—Robert E. Bundy, Fibreboard, San Francisco; George Ford, Fibreboard, Vernon; Clyde King, Fibreboard, Vernon, Panel Moderator; Arthur Hannaford, I.B.P.M., Oakland; Fred Pontin, Crown Zellerbach; Virgil E. Ready, California Div. of Industrial Safety, Los Angeles; Jack Thompson, Crown Willamette, Los Angeles (Registration and Arrangements); Robert Buckley, Fernstrom Paper Mills, Pomona, Calif.; Earl Gillenwatter, I.B.P.M., Pomona; Robert Burnette, Container Corp. of America, Los Angeles.

in all California plants since last year's conference was reported by Harvey Brown, Fibreboard Products, with a breakdown of percentages showing response to suggestions projected in 1946. These showed an encouraging response.

A panel discussion followed of accomplishments and experiences at the Vernon division of Fibreboard Products, Inc. Vernon was, in effect, a "pilot plant" for safety innovations. George Ford was moderator, with these discussions and leaders: (1) Safety director, Gene Ridings; (2) Safety captain, Norman Craig; (3) Safety committee, Charles Rieckenberg, and (4) Management's part, Frank Wheelock.

Mr. Wheelock stated that, when the program was instituted the amount of money necessary to set it up was \$1,400 for the first month; this, however, was mainly for installing the first aid training program. Results achieved were remarkable, he said, lost-time accidents and doctor-attendance mishaps being materially lowered.

Speaking of the monetary value, to both management and employed, the speaker declared that previous to the safety program, six months had produced 573 lost man-days, whereas for six months immediately following only 44 man-days were lost.

"Safety Inspections" were discussed, led by Earl Gillenwatter, Local 318, I.B.P.M. He named 26 safety inspection points covering practically every operation and safety hazard inside and outside a plant. The discussion brought out that lighting in plants was a bone of contention. Other points brought out were types of safety committees; time limits allowed inspection committees and investigation of accident causes immediately after occurring.

The second day began with an address by Robert E. Bundy, general operators manager, Fibreboard Products, San Francisco, on "Importance of Safety Job Instruction." He emphasized the vital need of job instruction training, and referred to it as a "new tool." It involved three stages:

1. Breakdown of every job, to closely

examine it to determine whether it involves body fatigue, or cumbersome movement, etc. Each particular job should be examined, broken down and reassembled. The result should become standard practice.

2. Workers inducted into a new job by understandable telling, plus showing, plus answering of questions. This reduces chances that a new employee will use his own ideas or imagination harmfully.

3. Performance, plus correction, plus practice, equals skill plus safe practice. This should apply even to old-timers.

Mr. Bundy emphasized that not all careless, unsafe practice results in accidents, but perhaps one out of every ten does. He said, in his opinion, job instruction training holds the key to accident reduction.

"Safety Enforcement and Discipline" was a panel discussion, led by Clyde King, Fibreboard, San Francisco, and other Fibreboard men: Reynold Victor, Antioch; Al Dodge, Stockton; Norman Burke, Stockton, and Frank Williams, Antioch.

Rex Eastin, assistant director, Los Angeles Chapter, American Red Cross, and Fred Pontin, Crown Zellerbach, trainer, Portland, the latter assisted by the Vernon First Aid team in an exhibition, discussed first aid.

Annual dinner of the conference was held on Nov. 6 with William D. Welsh, public relations director, Crown Zellerbach Corp., as toastmaster. Arthur W. Ponsford, regional editor of **PULP & PAPER**, spoke on "Adventures of a Waterfront Reporter."

### **Addition Being Completed For American Cyanamid Plant**

A new manufacturing addition to the existing paper chemical plant of American Cyanamid Co., is being completed in southeastern Kalamazoo at a cost of several hundred thousand dollars. Liquid alum for Kalamazoo region mills and size and casein for many Midwest mills are made here. L. R. Verdon is manager in Kalamazoo and his son, James, is assistant manager.

### **George F. Hardy Firm To Continue**

The firm name of George F. Hardy & Sons will be continued, according to John A. Hardy, son of the late renowned mill architect and consulting engineer. Mr. Hardy told **PULP & PAPER** last month that he intends to continue his father's work under the old firm name. "He did so much for the pulp and paper industry that I should like to have his name something more than a memory and the best means of so doing appears to me to continue to offer the services his name has always represented. I will have to assist me in this work the same organization which he had for so many years."

### **TAPPI Juniors Contest Revived in New York**

At a recent Western New York Group, Empire State Section of TAPPI, meeting at Niagara Falls, N. Y., it was announced that the section would resume its junior essay contest to stimulate independent research among the younger members. The contest had been abandoned during the past five years.

Martin Jaffe, chairman of the section, made the announcement. The Eastern group of this section meets at the Queensbury Hotel in Glens Falls, N. Y., on third Fridays each month of the season, and the Western group at Prospect House, Niagara Falls, on third Wednesdays.

### **New B-D Offices**

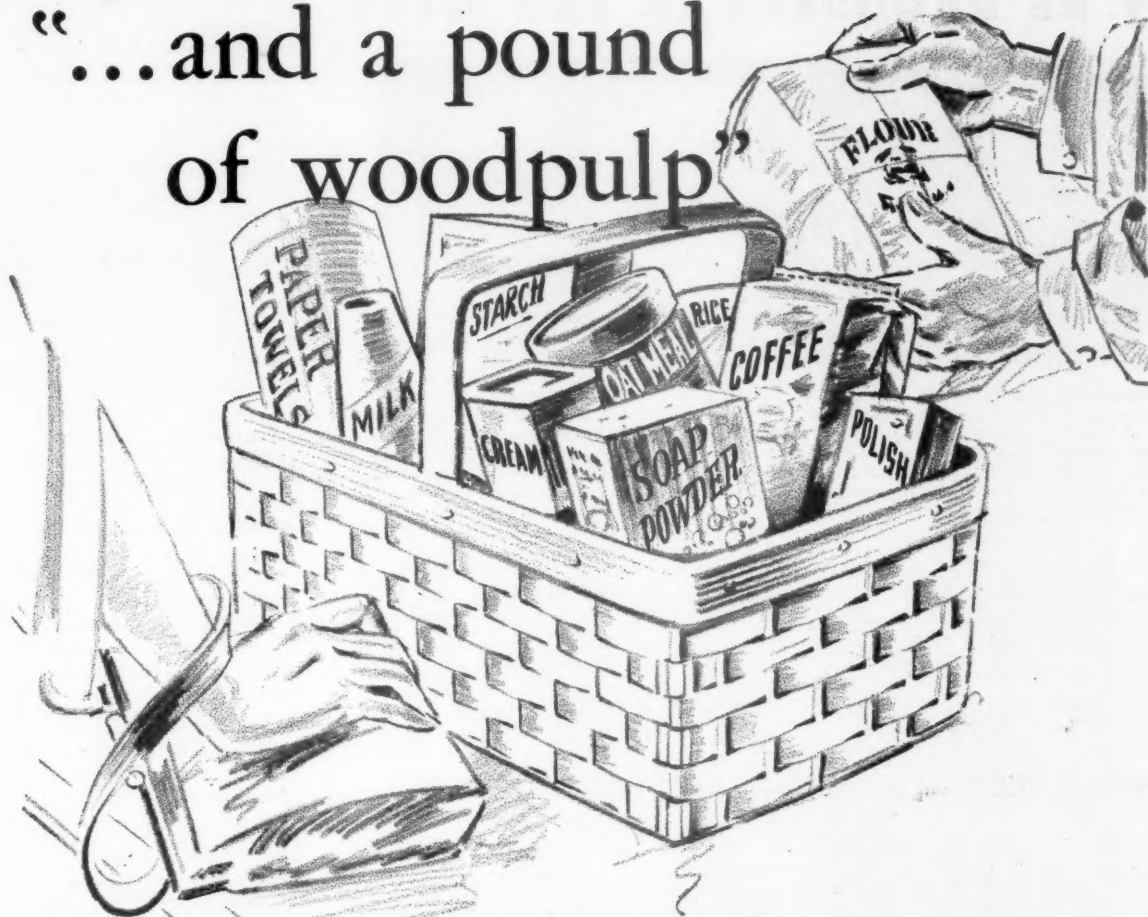
Expansion of Bulkley, Dunton & Co.'s service facilities in New Jersey with enlargement of the Newark office at 155 Washington St., is announced by J. C. Marvin, vice president. The new office is headed by Robert N. Thompson, for 20 years a salesman in the field.

### **General Chemical Merger**

General Chemical Co. has been merged with its parent company, Allied Chemical & Dye Corp., and hereafter its business will be conducted under the name of General Chemical Division, Allied Chemical & Dye Corp. No change in management is involved.



"...and a pound  
of woodpulp"



Not as absurd a remark as you may think, for it is Mrs. Housewife who ultimately buys and uses most of America's paper and paperboard.

Consider the multiplicity of items which are sold in today's markets—items which are either made of paper or packaged in a product made of woodpulp, molded or fabricated in one of a thousand ways to serve your interests . . . satisfy your needs.

As part of an industry which provides other industries with truly essential services, it is the job of the Pulp Division, Weyerhaeuser Timber Company, to furnish an assured and continuing supply of chemical woodpulp.

# WEYERHAEUSER



## New Chemicals for Paper Mills MAY BE PRODUCED IN FAR WEST



A FEW PROMINENT PARTICIPANTS in the Pacific Chemical Exposition, which centered attention on new and growing chemical and paper industries in the Far West (l to r.): ROBERT G. MISPLEY, Assistant Director of Central Technical and Research Dept., Crown Zellerbach Corp., Camas, Wash.; CLARK C. HERITAGE, Technical Director of Development Dept. of Weyerhaeuser Timber Co., and also of Wood Conversion Co. of Cloquet, Minn.; ARTHUR G. NORTON, former Maine consulting chemist now with offices in Seattle, and ARCH J. MEASE, Manager, Organic Chemical Dept., E. I. duPont de Nemours & Co., San Francisco.

Pulp and paper and related forest industries came in for major attention at the Pacific Chemical Exposition, San Francisco, Oct. 21-25, presented by the California section, American Chemical Society.

Robert G. Misphey, assistant technical

director, Central Research and Technical Dept., Crown-Zellerbach Corp., spoke on, "The Western Pulp and Paper Industry as a Consumer of Chemicals," and gave statistics (below) on chemical usage both nationally and on the Pacific Coast:

Arthur J. Norton, Seattle chemist, in a

### CHEMICALS USED IN U. S. PULP AND PAPER INDUSTRY (In Tons)

Chemicals—	Used in U.S.	Used on Pacific Coast	Chemicals—	Used in U.S.	Used on Pacific Coast
Sulfur ..... (imported)	400,000	145,000	Dyestuffs ..... (imported)	25,000	.....
Limestone ..... (local)	440,000	173,000	Casein ..... (both)	10,000	.....
Lime ..... (local)	500,000	50,000	Soya Bean Products		
Salt Cake ..... (local)	650,000	60,000	..... (imported)	35,000	.....
Soda Ash ..... (local)	150,000	10,000	Calcium Carbonate		
Caustic Soda ..... (local)	110,000	30,000	..... (imported)	75,000	.....
Chlorine ..... (local)	250,000	50,000	Glycerine ..... (local)	6,000	.....
Rosin ..... (imported)	100,000	10,000	Sugar—invert ..... (imported)	5,000	.....
Alum ..... (local)	150,000	15,000	Sulfuric Acid ..... (local)	9,000	.....
Clay ..... (imported)	600,000	30,000	Wax ..... (both)	100,000	.....
Titanium pigments			Asphalt ..... (local)	.....	7,000
..... (imported)	30,000	.....	Glue ..... (local)	8,000	.....
Talc ..... (local)	30,000	.....	Sodium Aluminate		
Sodium Silicate ..... (local)	400,000	.....	..... (imported)	5,000	.....
Starch ..... (imported)	125,000	.....	Enzymes ..... (imported)	500	.....

## SEMINAR ON CELLOLUSE MOLECULES



PROMINENT PARTICIPATING PERSONNEL in the Portland, Ore., round-table seminar on the new fundamental aspects of cellulose, left to right: Dr. Walter F. Holzer, Central Technical Department, Crown Zellerbach Corp.; D. Herman F. Mark, professor of organic chemistry, Brooklyn Polytechnic Institute, international authority on polymers who conducted the seminar; Raymond S. Hatch, research director, Pulp Division, Weyerhaeuser Timber Co.; Robert M. True, of General Dyestuff Corp., and secretary-treasurer of Pacific TAPPI; Harold C. Wall, chief chemist of Longview Fibre Co., and vice chairman of Pacific TAPPI.

paper written in conjunction with Donald V. Redfern, chief chemist, American-Marietta Co., Adhesive Resin and Chemical Division, pointed out that two large consumers of chemicals were plywood and plastic coating industries.

Clark Heritage, director of Development Div., Weyerhaeuser Timber Co., stated that the annual growth of the Pacific Coast forests is estimated to be 2.3 billion cubic feet which it is felt from past experience is probably very conservative considering the trend in silviculture and harvesting and integrated utilization for diversification of products.

"This raw material," said Mr. Heritage, "is constantly regenerated and the market for chemicals offered by the wood industry becomes more stable and more certain as each year passes. One is justified in describing it as perpetual."

Mr. Misphey, after pointing out that England and Georgia are chief clay sources, said: "There are extensive clay deposits in the West, characterized by low color and considerable overburden. Whether or not a material acceptable to the paper industry could be produced presents a challenge. It would not necessarily be required that the clay be competitive to those now used. For many discussed and contemplated applications, lower brightness would be acceptable."

Another recent development in the Far West has been of interest to the paper industry, he said, is the production of the guar bean in Arizona.

"Just prior to the war, locust bean gum, imported from the Mediterranean, was finding application for the production of a high wet strength factor in paper towelling," he said. "In an extensive search for a suitable substitute mannan-galactan, those engaged in the work discovered the guar bean. The extracted gum was found to have abilities in addition to those of the locust bean gum. A suitable location in which to grow the bean was found in southern Arizona and southeastern California area. Experimental quantities of the guar gum are available."

He also pointed out that potato starch may still work out for paper furnish. Idaho, Oregon, California and Washington have existing plants and the problem, a cooperative one with the paper manufacturers, is promising of a successful conclusion, he said. Should the peroxide bleaching process for groundwood pulps develop into an appreciable volume, economics would favor a local supply of the chemical, said Mr. Misphey.

Pacific Coast TAPPI has continued last year's advanced technical seminar intended and designed for graduate chemists, chemical engineers and other qualified personnel of the pulp and paper industry. Sessions held in Portland, Ore., Oct. 28-29 and in Seattle, Wash., Oct. 30-31, were conducted by an international authority on high polymers, Dr. Herman F. Mark, director of the institute of polymer research, Brooklyn Polytechnic Institute.

(Next month we will publish a brief review of Dr. Mark's three seminar talks).



## Caustic Soda

FOR NORTHWEST INDUSTRY

### In dozens of ways IT HELPS YOU EVERY DAY

• Yes, caustic soda is important to you in the pulp and paper industry; but, far more than you may realize, it enters your life every day in many vital ways.

Whenever you wash, you use caustic soda . . . it is a basic ingredient in soap. It helps to prepare fruit for preserving. It played a vital role in producing your car, your watch, razor blades and kitchen ware . . . your shoes, clothes, linens, woolens, cottons, rayons. And it is used in producing oils, matches, explosives, boiler compounds, and many other things in constant use.

It's a chemical of many trades . . . innumerable uses. And for all trades and purposes; Pennsalt supplies, as it has for many years, caustic soda of highest quality.

**PENNSYLVANIA SALT**  
MANUFACTURING CO. OF WASHINGTON  
*Chemicals*  
TACOMA, WASHINGTON

Pennsalt products include:  
**Caustic Soda and  
Liquid Chlorine**  
for the Pulp and Paper Industry

Also:

Bleaching Powder • Anhydrous  
Ammonia • Perchloron\* • Sodium  
Chlorate • Potassium Chlorate •  
Sodium Arsenite • Sodium Hypo-  
chlorite.

\*Trade Mark Reg. U. S. Pat. Off.



# JOHNS-MANVILLE RESEARCH CENTER

Before a group of distinguished scientists and research directors from other companies, Johns-Manville Corporation, on October 16, unveiled the first unit—a big laboratory and pilot plant building—of its modern Research Center group on the banks of the Raritan River, near Manville, N. J. On the same day Johns-Manville laid the cornerstone for the second building, now under construction.

On a 93-acre tract, the Research Center will ultimately comprise six buildings, connected by trucking subways, grouped around a quadrangle the size of two football fields, over which already towers a symmetrical "watersphere," modern counterpart of the old-fashioned water tank.

At the preview on October 16th a **PULP & PAPER** editor saw enough to confirm that the new Research Center will be one of the most important research establishments in the world. The importance of research to Johns-Manville is indicated by the fact that more than 56%

of its current sales are on new and improved products added—through research—since 1928. Utilizing such raw materials as asbestos fibres, diatomaceous earth, asphalt, dolomite rock, synthetic resins, and wood fibres, Johns-Manville technicians since 1858 have developed or improved more than 1200 products now in the J-M line.

Of chief interest to the pulp and paper industry in the present research set-up are the complete pilot plant department for the manufacture of Transite pipe; the manufacture of asbestos paper; and the making of wood fibre boards.

Transite pipe is a seamless pipe made from asbestos fibres and cement, and its basic manufacture is very much like the papermaking process except that the stock is rolled on a mandrel to form the pipe rather than carried out on a wire to form a sheet. Transite pipe is widely used in pulp and paper mills for the manufacture of all types of pulp and paper. At the new

Research Center experimental production is carried on in a pilot plant in the semi-works section of the Center, a continual effort being made for improvement of Transite pipe.

There is also a pilot plant for the experimental production of the new Quinterra asbestos paper which may be produced as thin as cigarette paper yet fire-proof, and which has also, in experiments, been given almost complete transparency. The new paper is used chiefly as an efficient insulating material for electrical apparatus. It is being produced commercially at a new J-M mill at Tilton, N. H., under the direction of Tom Quinn, well known in the industry. "Quinterra" is a combination of his name and the Latin *earth* from which asbestos fibred rocks come.

Under construction in the semi-works section is a complete pulp and paper pilot plant which includes rotary digester, pulp preparation equipment, and will eventually include small fourdriniers. Equipment is also being installed for wood board construction, and several laboratories in the Center are devoted to this basic research which is the foundation for the J-M production at Jarratt, Va., and the new J-M board mill going up at Natchez, Miss.

The unit already in operation is known as the "wet semi-works building" because its research and development involves wet processes. It is a 572-foot, two-story building containing ten miniature factories each directly connected with its own special laboratory. This arrangement permits research projects to be carried through the laboratory stage to the pilot plant stage under one roof and by the same personnel. Construction has followed two important lines: the concept of modular design in which a laboratory becomes simply an assembly of standard work space units; and the adaptation of the flexibility of use that has become established in large office building construction. Of primary interest are the relocatable partitions which trained personnel can take down and re-erect quickly without debris or confusion. These partitions are of Transite asbestos-cement sheets on lightweight metal studs.

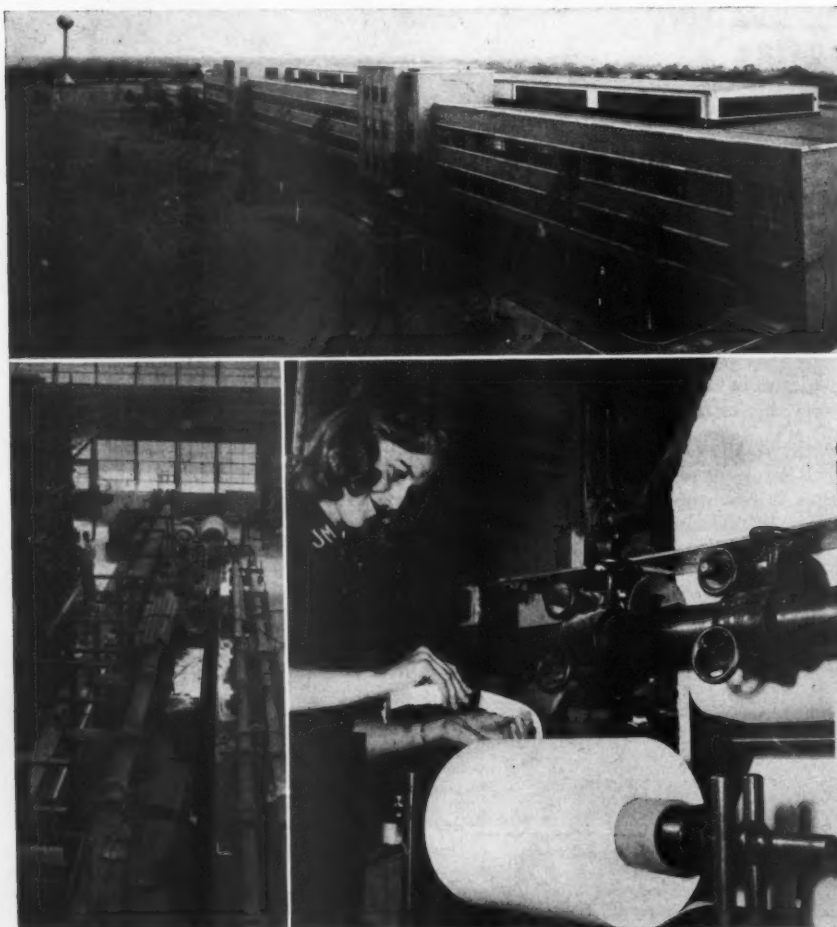
Although the laboratories are models for modern research, great emphasis has been put on the pilot plants. Said C. F. Rassweiler, vice president for research and development: "In every new process there is always some key step or piece of equipment which is new and upon which the success of the whole process depends. We actually build this critical piece of equipment full-scale here in our semi-works and operating this piece of equipment until we have succeeded in running it smoothly, at which point we can simply transfer the proven key piece into the plant and provide the necessary additional equipment to complete the flow line."

**JOHNS MANVILLE RESEARCH CENTER.** Top: Exterior of "Wet" building, first in the group of Johns-Manville Research Center to be completed—which will house ten separate research laboratories, each with own pilot plants devoted to research and development of individual products.

Bottom left: Transite Pipe, a seamless pipe made from

asbestos and cement being manufactured on pilot plant. It has many industrial applications.

Bottom right: A pilot plant in operation for experimental production of new Quinterra asbestos paper. Quinterra paper can be made as thin as cigarette paper, and will not burn; it has great dielectric strength and resistance to high temperatures.





# Nevada

- **Variety of metals, minerals and ores of value to industry**
- **Power and irrigation projects**
- **Good living conditions**
- **Colorful scenic attractions**
- **Excellent rail transportation**



*\* One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.*

**M**anufacturers, packers and processors will find Nevada a storehouse of raw materials. There are deposits of copper, silver, gold, zinc, lead and uranium. Mineral ores and minerals include tungsten, manganese and antimony ore, magnesite, gypsum, sulphur, borax and vanadium. Building stone and marble also are available.

Cattle, sheep and poultry raising are expanding agricultural pursuits and there also is some

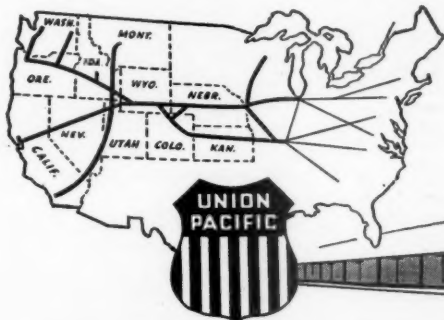
production of a variety of grains, vegetables and fruits.

Irrigation and power are supplied by several Federal projects including famous Hoover Dam.

Nevada's healthful climate, excellent educational system, and a variety of scenic attractions contribute to the advantages of living in this western area.

Each year, thousands of vacationists visit gigantic Hoover Dam, beautiful Lake Mead and near-by picturesque Las Vegas.

Union Pacific provides top-notch freight and passenger transportation so essential to a State's industrial development.



*\* Address Industrial Department, Union Pacific Railroad, Omaha 2, Nebr., for information regarding industrial sites.*

## UNION PACIFIC RAILROAD

THE STRATEGIC MIDDLE ROUTE

DECEMBER, 1947

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# Personals

## PACIFIC COAST

### New Top Mill Executives At Fernstrom Paper Co.

Francis O. Boylon has joined Fernstrom Paper Mills, Pomona, Calif., as mill manager in charge of paper mill operations and maintenance and eventually will also be in charge of converting, according to F. O. Fernstrom, president.

Donald W. Curtis has been appointed superintendent and he was to arrive at the Pomona, Calif., mill about Dec. 1, succeeding R. S. Buckley, who resigned.

Mr. Boylon, graduate of Michigan in 1934 in engineering, has been with Scott Paper Co. since then and is described as a co-inventor of Scott's high speed tissue machine. He worked up through mill positions to development engineer and for the past two years was manager of the Glens Falls, N. Y., and rehabilitated Fort Edwards, N. Y., Scott mills.

Mr. Curtis, an engineering graduate of John Hopkins in 1937, has been with Scott Paper Co. since then. On leaving with Army Ordnance, he became a major. He was assigned special work in starting up four paper machines at Fort Edward, including two new ones.

DAVE WATSON has retired as purchasing agent of Longview Fibre Co., Longview, Wash., because of ill health, and N. H. ANDERSON, formerly in engineering, has been named as his successor. Mr. Watson was honored at a dinner early in November at which 60 of his fellow workers and friends attended. At that time he was presented with a four-seater plywood motorboat, fully equipped from outboard motor to fire extinguishers. R. S. Wertheimer, resident manager, paid tribute to Watson's services and awarded him a 20-year pin.

J. H. McCARTHY, chief engineer for the St. Regis Paper Co., Tacoma, was in conference at the New York office of St. Regis last month following his attendance at the Second Engineers Conference at Philadelphia. He spent several days in New York State and Delaware before returning to the West Coast.

BLAKE HONEYMAN, whose picture was published in our last issue as a new member of the staff of Morden Machines Co., of Portland, Ore., was erroneously described as sales manager. His correct title will be sales engineer, as the item indicated in explaining he would work on new developments with C. W. Morden, president.

MISS KATHLEEN POWELL, for a number of years associated with the Opinion Research Corp., Princeton, N. J., has joined the industrial and public relations staff of Crown Zellerbach Corp., San Francisco.



J. T. Nicholson, Los Angeles Dist. Mgr., National Aluminate Co., who spoke on "Occurrence, Identification and Control of Bacterial Slimes in Paper Mills and their Effluent" at P.A.S.C. meeting, Oct. 16th.

CARL FAHLSTROM, assistant resident manager, and JOHN HART, technical superintendent, both of Longview Fibre Co., Longview, Wash., recently visited the Paper Institute in Appleton and called at mills in Wisconsin and the South. They took in the TAPPI-Superintendents meeting in Asheville, N. C., during their three-week trip.

RECENT PROMOTIONS at Longview Fibre Co., Longview, Wash., include three new shift maintenance foremen, F. Stanley Wooster, William H. Russell and William H. Kirby, and two assistant millwright foremen, A. J. Ouilette and G. T. Hazen.

ROBERT B. WOLF, retired manager of the Pulp Division, Weyerhaeuser Timber Co., reached New England after a cross-country drive and was staying for a brief period at the Hampton Inn in New Canaan, Conn.



4 for 1

It sometimes takes a lot more equipment than you expect to handle a situation! That's one of Puget Power's problems when it comes to transformers. On the average, every time folks want another kilowatt of electricity it takes four KVA in various transformers to deliver the load. During 1947 Puget Power needs 3600 distribution transformers, plus 58 hard-to-get large power transformers with a capacity of 162,500 KVA. Difficult as the situation is, finding skilled linemen to put the equipment to work is even tougher.

**PUGET SOUND  
POWER & LIGHT CO.**

MARTIN DEGGELER, vice president in charge of timber division, Rayonier Incorporated, has been elected to the company's executive committee and also its board. J. D. Zellerbach has resigned as a board member.

DARYL R. BOOMER, of Appleton, Wis., has been appointed a representative of Oliver United Filters Inc., in the Pacific Northwest and will shortly be looking for a home in Seattle or Portland, Ore. He is going to assist W. W. King in serving the pulp and paper industry in that region. Mr. King's office is 2900 Glascock St., Oakland, Calif.

RICHARD S. BUCKLEY announced as of Nov. 12 that he has resigned as superintendent at Fernstrom Paper Mills, Pomona, Calif. Mr. Buckley's future plans were undecided. He was born in Everett, Wash., and graduated from the University of Washington. He has been prominent in activities of Papermakers and Associates of Southern California, a technical group.

LEONARD McMASTER, of Portland, Ore., who represents Asten-Hill, Orr Felt & Blanket and other manufacturers on the Pacific Coast, recently looked over familiar haunts in his old home town of Philadelphia but he found it so hot and humid he was glad to get back to Willamette-side.

HENRY W. DAUTERMAN, assistant paper mill superintendent, Longview Fibre Co., Longview, Wash., made a quick trip to Appleton, Wis., because of family illness.

HARRIS B. FENN, JR., resident manager for National Aniline Div., Allied Chemical & Dye Corp., at Portland, Ore., moved to the west coast three years ago from Buffalo, N. Y., but not until recently did he and his wife, Sue, find time to motor up the mountain to Paradise, while on a swing around the Northwest mills. Now he wants to climb the rest of the way up.

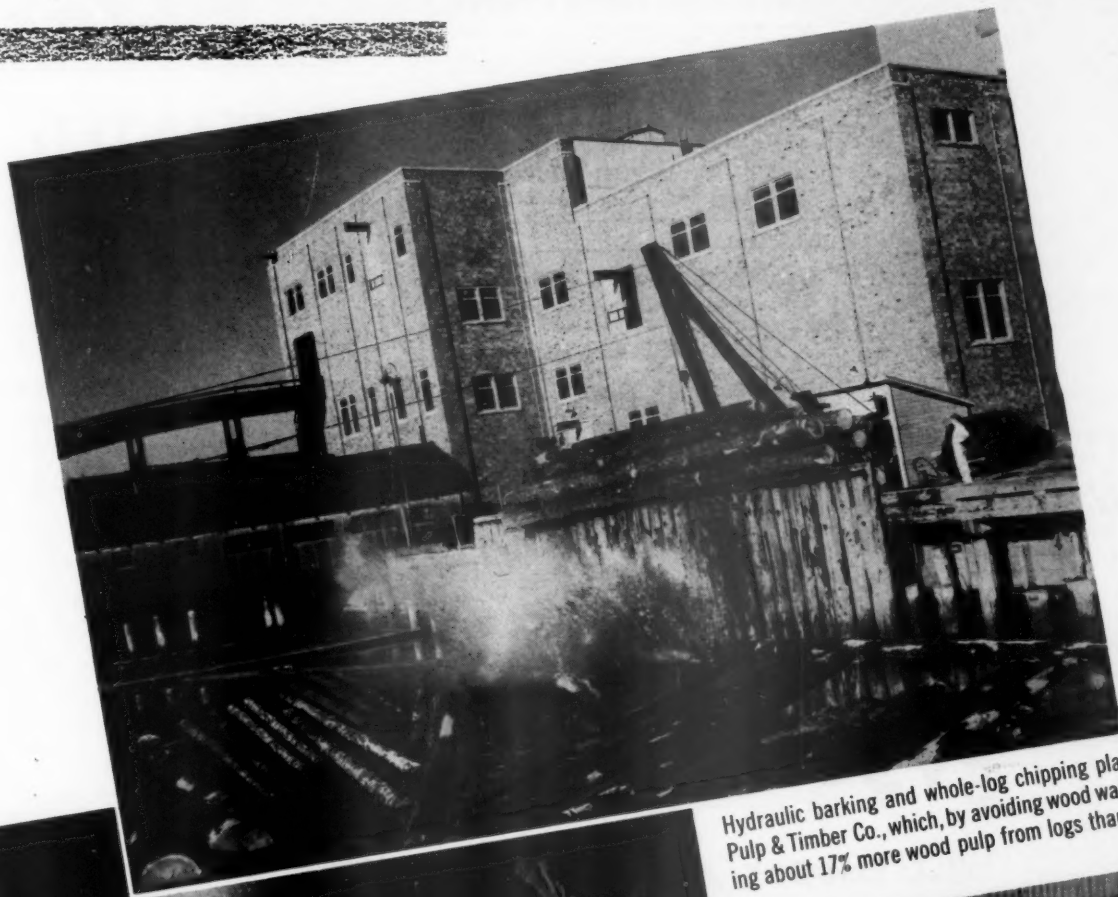
TENTATIVE PLANS have been made to hold a meeting of all Stream Improvement Council members in the West Coast region either in Portland or Seattle, early in December.

WESTERN WAXED PAPER CO. has awarded contract for construction of a new packaging research and development laboratory in San Leandro, Calif., to be completed by Jan. 1, 1948. It will be the first unit in Western Waxed Paper's \$750,000 construction project in San Leandro.

SEATTLE DIVISION of Zellerbach Paper Co. is now established in its new bright yellow building, 6301 Airport Way. Property area includes more than eight acres, giving plenty of employee and customer parking space, and providing room for expansion. E. H. Walthers is manager. A cafeteria for employees has been provided, and for convenience of visiting customers, there is a splendid sample room. New construction was supervised by E. A. Breyman, vice president.



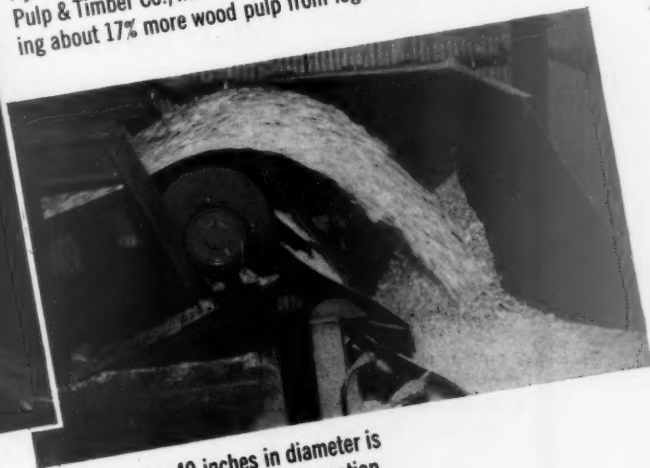
# *Modern methods* conserve forest resources



Hydraulic barking and whole-log chipping plant of Puget Sound Pulp & Timber Co., which, by avoiding wood waste, permits producing about 17% more wood pulp from logs than by former process.



After the bark has been removed by water power shot at 1,300 pounds pressure ....



.... a log 40 inches in diameter is reduced to chips in a swift operation.

## **PUGET SOUND PULP & TIMBER CO.**

*Bellingham, Washington*

### Frigh Rate Hearings

Hearings before the Interstate Commerce Commission in connection with the petition of the railroads, Ex Parte No. 166, for a permanent increase in freight rates, in lieu of the emergency increase of 10% effective Oct. 13, got under way in Chicago as this issue of **PULP & PAPER** was preparing for the press.

The industry is being represented by the Traffic Committee of AP&PA which, under the direction of W. R. Settgas, traffic executive, has been busily preparing its case. Other hearings were to be held throughout the month of November, with a final hearing scheduled for Dec. 8 at Washington, D. C. A decision should be forthcoming by Jan. 1.

### Printed on Canadian News

Three out of every five newspapers in the world are printed on Canadian newsprint. Four-fifths of total production moves to U. S. publishers.

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Los Angeles Detroit Boston Montreal

Positions Will Be Open February 1, 1948, for two highly skilled machine tenders and two backtenders for new M. F. Fourdrinier pickup paper machine trimming 150". Prefer machine tenders maximum age 40 years; backtenders maximum age 35 years. Applicants must have knowledge high speed machine manufacturing waxing, carbonizing, creped, and tissue papers. Offer four positions to men of good habits and unquestionable experience. Wages paid according to Pacific Coast union agreements based on trim and speed of machine. Send complete resume giving education, experience, references to Fernstrom Paper Mills, Inc., P. O. Box 119, Pomona, California.

PROCUREMENT AND WOODLANDS MANAGER—13 years extensive experience in all phases of wood procurement (both company and contractor operated) and timber acquisition on large operation. Reply Box 56, Pulp & Paper, 71 Columbia Street, Seattle 4, Wash.

### POSITION WANTED

Seek post offering advancement when capable. Have 18 years experience in pulp and paper industry with large companies on east and west coast, lately as supervisor of warehousing, shipping, and yard. Also have experience in newsprint, krafts and tissues. Reply Box 53, Pulp & Paper, 71 Columbia St., Seattle 4, Wash.

SALES POSITION WANTED — Young man 36 years old wants sales representative position in West. Experience: 15 years paper; 8 years mill; 7 years calling on paper jobbers and wholesale grocers. Will not consider traveling more than 25 per cent of time. Available January 1st, 1948. Reply, Box 54, PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

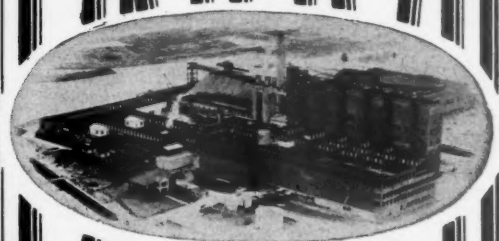
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**EVERETT WASHINGTON**



DECEMBER, 1947





MEMBERS OF PANEL who participated in TAPPI discussions of new laboratory gadgets at Everett, Wash., meeting (left to right): Harold A. Deery, Weyerhaeuser Timber Co., Longview, Wash.; Arlo C. Silliman, Weyerhaeuser, Everett; Malcolm Stewart, Puget Sound Pulp & Timber Co., Bellingham; Robert Marriot, Crown Zellerbach Corp., Port Townsend; C. T. Beals, Crown Z, Camas; Peter Taranoff, St.

Helens Pulp & Paper Co., St. Helens, Ore.; Norman Lea, Soundview Pulp Co., Everett; John Klein, Longview Fibre Co., Longview; Glenn Simkins, Rayonier Inc., Port Angeles; O. K. Chapman, Weyerhaeuser, Everett, who arranged meeting; Harold C. Wall, Longview Fibre, who was Moderator, and A. M. Cadigan, St. Regis, Tacoma.

# "Lab" Technicians

## DESCRIBE SOME NEW GADGETS

Laboratory technicians had a field day at the recent meeting of the Pacific Coast Section of TAPPI held in the Everett (Wash.) Library Auditorium Nov. 4.

A panel discussion of "Laboratory Gadgets and Procedures" formed the basis for ten short papers, which were presented by men from a cross-section of Northwest pulp and paper mills. One hundred and seven attended afternoon and evening events in the largest pulp and paper center on Puget Sound.

Frank E. Caskey, Crown-Zellerbach Corp., Camas, Wash., presented a paper to be entered in the Shibley Award contest for young Pacific Coast mill employees on "Effect of Beating Tackle on the Development of Strength."

Mr. Caskey pointed out that by holding laboratory beaters to a fair sharpness certain fixed results can be expected. He found that consistencies had no appreciable effect on the beating except as to contact pressure. He also noted that as the peripheral speed of the roll was increased the strength development tended to decrease. Tests conducted at consistencies of from 0.95% up to 4.0% proved that the optimum ratio of cutting edge to wet beating surface was found to be 30 to 1 at 40 p.s.i. contact pressure. Slides were used to illustrate several points brought out by Mr. Caskey in his paper, which is published on page 66.

Harold C. Wall, chief chemist of the Longview Fibre Co., acted as moderator for a lively symposium on "Practical Laboratory Gaskets." Several of the papers were illustrated by slides and one speaker brought his gadget with him to the meeting.

A. C. Silliman, Weyerhaeuser Pulp Division, Everett, told of a speed-up method for drying hand sheets used in bleach tests. By the use of two drying rings circulating air at 210° F. the drying time

was cut to seven minutes. Some degradation of color was noted but as it remained a constant the new method proved of considerable value as a standard control test in the mill operation.

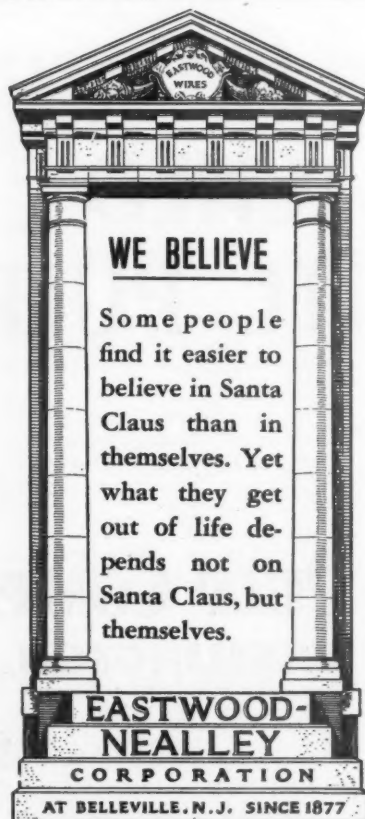
A motor-driven disintegrator for the preparation of pulp fiber in alpha tests was described by Norman S. Lea of the Soundview Pulp Co., Everett. Mr. Lea compared the saving in time over the knife scraping method, suggesting that after

numerous tests and a routine check with the knife scraping method that the motor-driven apparatus had proved its worth. The equipment consists of a motor-driven rotor on which is placed a nail-studded leather sleeve. The pulp sheet is presented to the revolving nail points through a slot in the shell which covers the whole machine, the rotor of which maintains a peripheral speed of 1000 feet per minute. Mr. Lea concluded his talk by posing the question that alpha testing is not standardized but perhaps it should be.

A recording friction tester for multi-wall bags was shown to the group by John Klein of Longview Fibre Co. By the ingenious use of discarded equipment found around the laboratory, Mr. Klein developed a machine which can reproduce a test which is essential in assuring customer satisfaction to users of multi-wall bags. A recording pen provides a permanent record on the calibrated charted attached to the machine.

Two laboratory gadgets were described by Robert Marriot of Crown-Zellerbach Corp., Port Townsend. A scuff tester for testing kraft paper consisting of an oscillating table holding a sample of paper which comes in contact with a roller on which is placed a facing of Crocus cloth (Carborundum Co.). The number of revolutions of the roller is recorded when the sample wears through, this number being compared with a standard set up from an optimum quality sample. The second gadget presented to the meeting was a suction lift for removing hand sheets from moulds. By utilizing an aspirator connected by a hose to a portable suction box, the removal of hand sheets is done without felting. The suction face of the box is covered with outing flannel and can easily be duplicated by the mill laboratories.

The many uses of the drill press within





Rayonier Inc. meeting, Cadigan, S.

S

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the laboratory was brought out by Glenn Simkins of Rayonier, Inc., Port Angeles. He particularly stressed the advantage the drill press has in cork boring over the hand method. By the use of glycerine as a lubricant at the cutting edge, a more satisfactory method of boring an otherwise difficult hole is made easy.

Stewart Malcolm of Puget Sound Pulp and Timber Co., Bellingham, presented a paper in which he described and told the uses of a test cook sampler to be used in regular mill digester operation. The vessel, which is of stainless steel, cylindrical in shape with a cone section on the end, can be suspended in the digester from the neck fitting. A number of 1/2-inch perforations in the body of the container allow free passage of the cooking acid to enter the vessel and cook the chips, with which it is charged, under actual mill operating conditions. A stainless steel 35-mesh wire cloth liner prevents contamination of the chips in the sample cook by pulp from the digester. By increasing and decreasing the length of the chain on which the testing vessel is suspended, various areas of the digester can be studied.

By balancing air against a mercury column, a Beaume recorder has been developed at Camas to test the density of black liquor in the kraft mill as it leaves the second stage evaporator. C. T. Beals of Crown-Zellerbach, Camas, told the group of the ingenious device which records Beaume readings up to 15° Beaume. He illustrated his equipment with slides.

Allen M. Cadigan of St. Regis Kraft Division of Tacoma told how he "saved the necks" of his laboratory color testers by changing the location of the milliam-

## NEXT-IN CAMAS

The next meeting of Pacific Coast TAPPI, oldest of the TAPPI sections in the U. S., will be held on Friday, Jan. 16 (instead of the customary Tuesday), at Camas, Wash., probably in Nora Self Hall.

Dr. Wendell W. Moyer, research director of Crown Zellerbach Corp.'s Central Technical and Research Department, will address the group on "Opportunities in the Pulp and Paper Industry from the Standpoint of the Student." Dr. Moyer joined the Crown Zellerbach organization earlier this year.

Pacific Northwest colleges and universities are expected to send delegations and to participate.

meter on the GE brightness tester so that the operator could see the reading by looking straight ahead instead of down, as formerly.

Harold Deery, Weyerhaeuser Timber Co., Longview, showed the gathering that the use of compressed air on the press for hand sheets in the laboratory saved considerable time for the testers. The use of the potentiometer in control instruments was thoroughly covered by F. N. Fitting of Brown Instrument Co., in the concluding paper on the symposium.

In the evening, Dr. Donald Loughridge of University of Washington staff told of the needs of America in the field of fundamental research. He pointed out that most of the great war weapons were fundamentally developed by Europeans and that more attention must be given to basic research here in the United States or we will soon find ourselves trailing in science.

Arrangements for the Everett meeting were in the hands of O. Kenneth Chap-


man, technical director, Everett pulp mill, Weyerhaeuser Timber Co. Dr. Joseph McCarthy presided at the afternoon session and also at the dinner which was held in the Monte Cristo Hotel in Everett.

## Patent Taken on Process For Methane Gas From Mill Effluent

A patent on a process for production of Methane gas for use as a fuel from organic materials including sulfite liquor has been assigned to the Sulfite Products Corp., holder of patents and processes for the group of 11 Wisconsin mills and Detroit Sulphite Pulp & Paper Co., which are sponsoring research in waste liquor utilization.

The process was developed by Averill Wiley, formerly of Spokane, Wash., and now on the staff of the Sulfite Pulp Manufacturers' Research League in Appleton, Wis. There has been neither pilot plant nor commercial demonstration of his process as yet, but it is believed it may merit experimental development.

C. J. WEST, JR., whose father is a well known executive of the Institute of Paper Chemistry, is the chairman of the Lake States TAPPI for 1947-1948, the group which generally meets Second Tuesdays each month at the American Legion Hall in Appleton, Wis., for dinner. Last month they met Wed., Nov. 12, and toured Thilmany Pulp & Paper Co. in Kaukauna, Wis., to see that mill's new venturi scrubber for dust recovery. Young West is in the production planning work at Kimberly-Clark Corp., Neenah, Wis. George R. Sears, of the Institute staff in Appleton, is secretary-treasurer of Lake States TAPPI.



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## A Shibley Contest Paper — —

# EFFECT OF BEATING TACKLE ON DEVELOPMENT OF PULP STRENGTH

By Frank E. Caskey

Crown Zellerbach Corp., Camas, Wash.

### Introduction

Experience has shown that handsheets made in the laboratory have strength approximately twice that of paper made on a commercial paper machine. Considerable loss can be attributed to machine formation. Nevertheless, handsheets made from commercially refined pulp will have strength considerably lower than those made from stock treated to the same freeness in the laboratory beater. This discrepancy is noteworthy if only to emphasize our limited knowledge in answering the question, "Why does a laboratory beater develop the pulp strength to a greater degree than does commercial refining equipment?"

To emphasize this point, if commercially refined pulp is further treated in a laboratory beater, the strength of the resulting pulp will approach the strength of the same stock treated only in the laboratory beater. This lower strength development by commercial beating is not the result of the destruction of potential strength. Rather it is the failure to develop the maximum strength since proper subsequent treatment will bring out latent undeveloped strength.

For a fundamental approach it seems wise to refer to the paper, "A Study of the Beater," by Samuel Milne(1). In this paper Mr. Milne develops the conception of beating in the following method:

FRANK CASKEY, of Crown Zellerbach Corp., Camas, Wash., author of this paper delivered at Everett TAPPI meeting and first of the 1947-48 season to be entered in an annual Shibley Award contest.



Beating in its broadest sense includes a wide range of effects from:

1. Cutting without wet beating, i.e., blotting paper.
2. Wet beating without cutting, i.e., greaseproof or glassine paper.
3. The range between these two extremes in which most mills operate their beaters.

In considering a beater, if we take a roll bar A meeting a bedplate bar B (See Figure 1), the cutting edges have completed their work the moment they touch one another, while the wet beating surfaces have not come in action at all. The cutting effect is dependent only on the number of bars and is determined by the following equation:

(1) Cutting effect or Inch Cuts/Min.—  
(Number of roll bars) (Number of bedplate bars) (length of roll) (RPM).

The wet beating occurs as surface C passes over surface D. The wet beating power of any beater depends solely on the total thickness of the bars in the roll and the total thickness of the bars in the bedplate. It can be expressed by the following equation:

(2) Wet beating power or Square Inches/Min.—

(Number of roll bars) (Thickness of roll bars) (Number of bedplate bars) x (Thickness of bedplate bars) (Length of roll) (RPM).

The ratio of cutting edge to wet beating surface is the quotient obtained by dividing the first equation by the second or is equal to:

(3) (Inch Cuts/Min.)

(Square Inches/Min.)

As an example to make the importance of this equation more clear, we can refer to Figure 1. Now, by supposing each bar to be 1-inch thick, we can change the cutting effect by substituting each bar with four ¼-inch bars. Referring to equations (1) and (2), it can be seen the total thickness is the same, but the cutting power has been increased from 1 to 16 or the "ratio of cutting edge to wet beating surface" has been increased sixteen times.

Milne further advocates:

"1. For all ordinary paper and for most

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An enzyme product for  
preparing superior coatings  
and tub-sizings from starch.

WALLERSTEIN COMPANY, INC. 180 Madison Avenue, New York 16, N. Y.



special papers, bars with square edges are better in every way, as they will maintain their cutting and wet beating properties all the time.

"2. In beating there are two actions: (1) 'cutting' and 'wet beating.' The beater must be so designed to give the right proportion of 'cutting' to 'wet beating.'"

#### Definitions and Procedure

To prevent misunderstanding, a definition of terms is essential at this point. In this and related work the TAPPI laboratory beater has been used as a standard of comparison. Wherever the term burst or tear ratio is mentioned, reference is made to the bursting strength developed or tearing strength retained by the equipment under consideration multiplied by 100 and divided by the value of the identical test at the same freeness from the standard laboratory beater. TAPPI standards were used in testing the pulps except as noted.

The evaluation of a piece of equipment incorporated the following procedure:

A sample of pulp, sufficient for a TAPPI beater test, is taken ahead of the refining engine and another sample for freeness and strength handsheets, taken from the discharge of the engine. The beater sample, untreated by the engine under consideration, is tested in the standard laboratory beater following TAPPI method (T 200 m-45) except that the usual 5-minute period for circulation was shortened to a minimum time as, in the case of well beaten stocks, the mere circulation had a tendency to lower the freeness of the pulp.

From the beater curve thus obtained the per cent burst and tearing resistance were interpolated for the freeness equal to that of the stock treated in the equipment under observation. The values for burst and tear determined on the latter stock, divided by the respective standard beater results, multiplied by 100, gave the burst and tear ratio.

The advantage of this method is that the equipment is compared to a standard beater using identical stock and operating in the same freeness range. Now, if we consider a beater curve where the power input is held at a fixed value (See Figure 2), it is apparent that at the start the beater, or any other refiner, is going to expend considerable energy with little lowering of the freeness. At the same time the beater will develop relatively more strength and reduce the tearing resistance faster for this same small freeness drop. At a later stage of the beating operation the freeness drops faster with the burst approaching a maximum and with the tear a minimum. Obviously,

then, it follows that comparing the strength development of two stocks at different ranges of the freeness curve, even in the same beater, is impossible.

Yet this mistake has been made and cases have arisen whereby faulty conclusions have been drawn because two engines were operating at different parts of the freeness curve.

The refining equipment is essential to the development of high strength in the resulting paper. For that reason it was chosen as a logical point to study in order to improve paper quality. As noted previously, commercial equipment showed poor mullen development, and for that reason it appears necessary to determine the effect of certain variables involved in the beating process, by attempting to control them in laboratory equipment. The variables that appeared worthy of consideration are: (1) consistency, (2)

materials used in tackle, (3) peripheral speed, (4) contact pressure of the bedplate on the beater roll, and (5) the ratio of cutting edge to wet beating surface.

#### Effect of Consistency

Consistency variations found in normal operation were not significant except as related to pressure. The effect of consistencies above 2.5% have not been definitely determined due to poor circulation in laboratory equipment. Work is now under way studying the effect of higher consistencies in a mill beater.

#### Effect of Materials Used in Tackle

Some metals, such as bronze, maintain a sharp edge as they wear. Tackle made from these metals have been known as the cutting type. Mill experience indicates equipment using bronze tackle remains sharper than steel.

No difference was found between using steel or bronze tackle in the laboratory beater. This discrepancy from mill observation can be possibly attributed to the fact that all metals used as tackle in the laboratory beater were approximately the same sharpness. In the mill, bronze maintains sharpness in wearing, while on the other hand, the leading edge of a steel bar becomes rounded over.

Laboratory work so far has been unable to evaluate the effect of the sharpness of the edge quantitatively. It is difficult to measure its importance or describe any condition that is particularly good or bad. Recent work has disclosed that the edges of the tackle can be either too sharp or too dull. However, in no case were the edges dull enough to compare with the rounded ones found in a worn-in commercial jordan.

#### Effect of Peripheral Speed

In Table I is listed the results obtained by varying the speed of the beater roll in the laboratory 5-pound beater. This change was accomplished by substituting different pulleys on the beater roll drive.

When the peripheral speed of the



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To all our friends we wish good health,  
And happiness each day.  
We hope that both success and wealth  
Their labors will repay.

And so we send this greeting old --  
But none the less sincere --  
A Very Merry Christmas  
And a Prosperous New Year.

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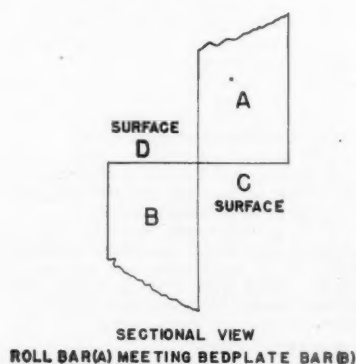
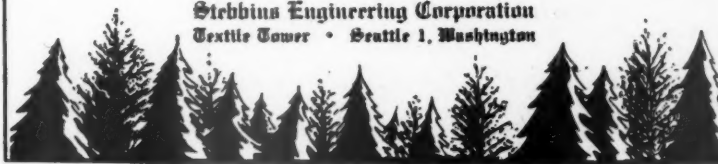


Fig. 1

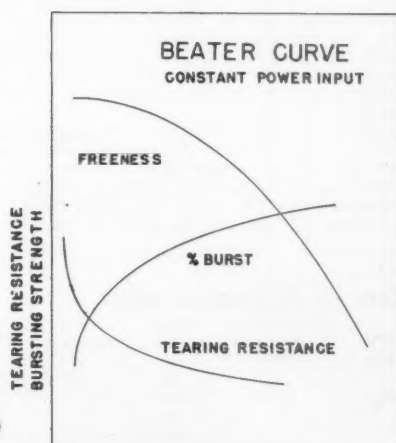


Fig. 2

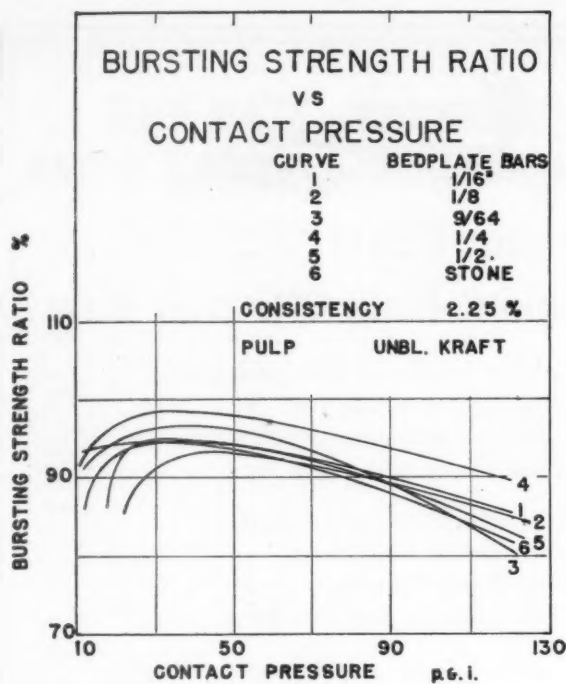


FIG. 3

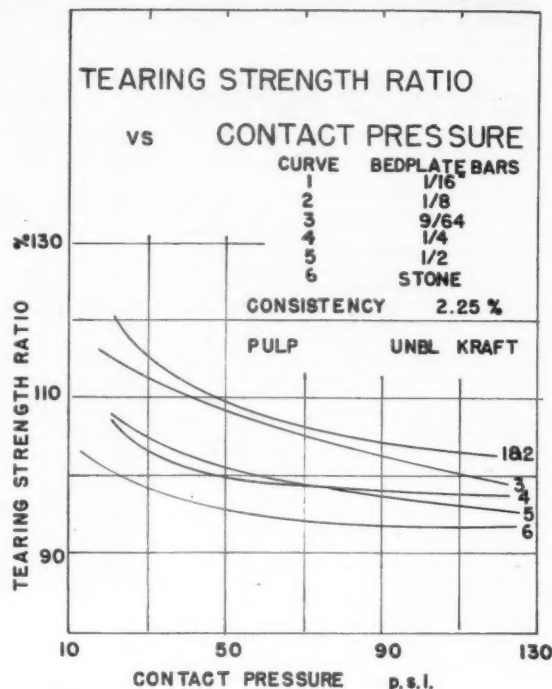


Fig. 4

beater roll in the 5-pound beater was increased from 28 to 53 feet per minute, there was a reduction in the bursting strength ratio of 8%. It was thought possible to avoid this loss at higher speeds by increasing the contact pressure of the bedplate on the roll. The results obtained on this particular phase have been inconclusive, but the trend shows only a partial reduction of the loss.

#### The Effect of Contact Pressure

To explore the possibilities of increased pressure on the beater roll a number of tests were made altering this variable. By definition, pressure is the force per unit area. Due to the unique surface area in a refiner, it may be wise to take a few minutes to discuss the equation supplied by E. D. Jones & Sons Co. for calculating the contact pressure.

(4) Contact pressure (p.s.i.)—  
Force where the average area

(Average area)

is determined by the following equation:

(5) Average Area— $Z \cdot B \cdot R \cdot L \cdot W$

$P \cos \xi p$

Z=Number of bedplates.

B=Width of bedplate bars.

R=Width of roll bars.

L=Length of bars in contact.

W=Width of bedplate.

P=Pitch of roll bars (distance from leading edge of one bar to leading edge of next bar).

$\xi$ =Angle the bedplate bars make with fly bars or axis of rotation.

p=Pitch of bedplate bars.

To apply the desired force an amount of weight was added to the lever arm of the bedplate equal to the weight necessary to balance the bedplate (5 kg. in this case) plus the product of the contact area multiplied by the contact pressure. Several trials were made varying the pressure from 10 p.s.i. to 121 p.s.i. in the 5-pound laboratory beater. At a consistency of 2.25% a maximum burst was obtained for all bedplates tested at a pressure ranging from 30 to 50 p.s.i. (See Figure 3). The tearing strength for all types of tackle dropped quite sharply until the contact pressure of 50 p.s.i. was reached where it leveled off (See Figure 4).

#### Ratio of Cutting Edge to Wet Beating Surface

Two beaters, one a laboratory type equipped with a stone roll and bedplate, the other a commercial type equipped with steel bars and a stone bedplate, had a ratio of cutting edge to wet beating surface approximately equal to 1:1, and both showed inefficiency in developing burst as compared to the standard laboratory beater which has a ratio of about 42 to 1. Similar results were shown on other pieces of equipment. As the ratio increased on both mill and laboratory equipment, the strength development improved showing a definite relationship.

To explore this field fully a number of tests were made in the 5-pound laboratory beater interchanging the bedplates. These tests were made in conjunction with the study regarding the variation of contact pressure of the

beater roll on the bedplate. The results obtained indicated an optimum ratio of cutting edge to wet beating surface equal to 30:1, which is the approximate equivalent of 3/16-inch tackle (See Figure 3).

On the other hand, a close survey of Table I will show that the supposedly cutting-type tackle produced better tearing strength ratio. This can only be explained by edge condition, and since this was a variable not under control, it is possible that any or all of the bedplates could have been operated under better conditions. The choice of tackle condition was made by running one type of test until the highest possible bursting strength was developed, then completing the series leaving the tackle alone.

#### Summary

In summarizing, the following generalizations are noted:

1. Consistencies from 0.95 to 4% had no appreciable effect except as related to contact pressure.

2. The increase of peripheral speed tended to reduce the strength development of a beater.

3. No evaluation could be made on the materials used in tackle, as no difference was noted in the sharpness of the edges between the bronze or steel tackle. It is important, however, that the material be such that it retains its sharpness as high test was coincident with a fairly high degree of sharpness.

4. In the laboratory the optimum pressure range was found at 30 to 50 p.s.i. Above or below this pressure the beater failed to develop as high burst.

5. At 40 p.s.i. an optimum ratio of cutting edge to wet beating surface was determined to be 30:1, approximately the equivalent of 3/16-inch tackle.

Work is under way to apply these results to commercial operations. Although not yet in application our preliminary work, along with that of others, indicates a means for improving paper quality.

#### LITERATURE CITED

(1) Milne, Samuel, "A Study of the Beater," 2-9-27. (Reprint from Proceedings of the Technical Section of Papermakers' Association of Great Britain). Published by Bertrams Ltd., St. Katherine's Works, Sciennes, Edinburgh 9.

TABLE I  
CHANGE OF BURST WITH INCREASE OF PERIPHERAL SPEED

Beater—	RPM	Peripheral Speed Ft./Sec.	Burst Ratio	Average
5-pound experimental beater .....	855	52.6	85	85.0
5-pound experimental beater .....	455	27.9	85	
5-pound experimental beater .....			93	
			92	92.5
Standard beater .....	500	16.7	100	
5-pound experimental beater .....	220	13.5	105	
			108	106.5



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